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THE NORMAN HORSE.

TRANSACTIONS

OF THE

NEW HAMPSHIRE

STATE AGRICULTURAL SOCIETY,

FOR THE YEAR

1853.

COMPILED BY JAMES O. ADAMS, SECRETARY.

CONCORD:
WILLIAM BUTTERFIELD, STATE PRINTER.
1854.

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1858 June 30
Gift of
Charles Lewis Flint
Class of 1849
Secretary of the Massachusetts
Board of Agriculture

SECRETARY'S NOTICE.

In presenting the second volume of the State Agricultural Society's Transactions to the farmers and mechanics of New Hampshire, the Executive Board feel confident that they are acting in accordance with the expectations of the members, and are substantially contributing to the diffusion of agricultural knowledge among the people. The volume must necessarily contain some pages which are of little importance—some which might have been occupied with more practical or scientific matter; yet it is believed that it will compare favorably with the published Transactions of older and more richly endowed associations, and that the reports of the juries, the addresses and discussions at our annual meeting, the essays and communications, with the statistical matter and the condensed reports of County Societies, which are published in the volume, will be read with interest and profit.

JAMES O. ADAMS, *Secretary.*

LIFE MEMBERSHIPS AND DONATIONS.

The payment of $25 constitutes Life Membership, and exempts the donor from the annual one dollar assessment. The following sums have been paid to the Treasurer of the Society:

Asylum for Insane, by Andrew McFarland,	$26 00
Abraham Bean, Concord,	5 00
Baruch Biddle, Concord,	6 00
J. A. Burleigh, Great Falls,	5 00
Dixi Crosby, Hanover,	15 00
Ichabod Goodwin, Portsmouth,	25 00
George W. Nesmith, Franklin,	20 00
Franklin Pierce, Concord,	10 00
J Hamilton Shapley, Exeter,	5 00
James M. Whiton, Holderness,	40 00

CONSTITUTION.

The style of this society shall be, "The New Hampshire State Agricultural Society." Its object shall be to improve the condition of agriculture, horticulture, mechanics, domestic arts and manufactures.

SECTION 1. Any citizen of the State may become a member on subscribing to the constitution, and by the payment of not less than one dollar, and annually thereafter one dollar.

The Presidents of county agricultural societies, or a delegate from each, shall, *ex-officio*, be members of this Society.

The payment of twenty-five dollars or more shall constitute a member for life, and shall exempt the donor from annual contributions.

SEC. 2. The officers of this Society shall consist of a President and ten Vice Presidents, one located in each county; a Secretary, a Treasurer, and an Executive Committee, to consist of five members, who shall be chosen at the regular annual meeting of the Society, who, together with the President and Secretary, shall constitute a board of supervisors, to manage the general interests of the Society.

SEC. 3. The Secretary shall keep the minutes of the Society, shall conduct the correspondence with other societies, with individuals, and with the Executive Committee in behalf of the Society.

The Treasurer shall keep the funds of the Society, and disburse them on the order of the President, or a Vice President, countersigned by the Secretary, and shall make a report of the receipts and expenditures, at the regular annual meeting.

The Executive Committee shall take charge of and distribute or preserve all seeds, plants, books, models, &c., which may be transmitted to the Society, and shall also have charge of all communications designed for publication, and so far as they shall judge expedient, shall arrange and publish the same in such manner and form as they shall deem best calculated to promote the object of the Society.

The Vice Presidents are charged with the interests of the Society in the counties where they shall respectively reside, and will be a medium of communication between distant members of the Society and the Secretary or Treasurer.

SEC. 4. There shall be an annual meeting of the Society, at such time and place, during the holding of the annual fair, as the Executive Committee shall direct, when all the officers shall be elected by a plurality of votes and by ballot.

Extra meetings may be convened by the Executive Committee —three of whom shall be a quorum for the transaction of business.

SEC. 5. The Society shall hold an annual fair and cattle show, at such time and place as shall be designated by the Executive Committee.

SEC. 6. This constitution may be amended by a vote of two-thirds of the members attending any annual meeting.

TRANSACTIONS

OF THE

N. H. STATE AGRICULTURAL SOCIETY.

REPORT.

The Executive Board of the Society, in making their annual report, cannot revert to any single subject of transcendent importance, which has claimed their attention during the past year. The energies of the association have never been especially directed to any one department within the field of our operations. No extraordinary inducements have been offered for the cultivation of a particular crop, or for the improvement of any specific kind of soil. No money has been expended in the importation of foreign stock, or in encouraging the farmers of the State to breed any individual class of animals, to the exclusion or neglect of others. We have undertaken no experiments. Our object has been general, rather than special—our patronage has been extended to nearly every variety of useful employments and to such departments of the fine arts as have been considered worthy of the Society's encouragement.

In the arrangement of our premiums and the determination of awards, we have had regard to the permanent prosperity of the Society and to a full development of the agricultural resources of the State. Our design has been to aid and encourage the farmer of small means, who labors faithfully on a rigorous and unproductive soil, as well as his richer neighbor, who having received his wealth by inheritance or acquired it by trade, is willing to contribute liberally to beautify some rural retreat, and exhibit the results of high cultivation. We would induce the laborer who possesses but a single cow and cultivates but a few

roods of earth, to compete with him who numbers his flocks and herds by hundreds and occupies the broadest fields. The mechanic who produces the most excellent workmanship, the manufacturer who presents the nicest fabric, the artist who exhibits the choicest creation of his ingenuity, we would reward according to merit and the circumstances under which they have labored.

The results of our operations correspond with our efforts. They do not appear conspicuously in any department, but are manifested in a general manner. They are not so marked and distinct that we can point to this or that improvement and claim that it has arisen entirely from the past year's labors. We must estimate the benefits which our Society confers, in the aggregate and as they are revealed in a succession of years.

A new interest has been awakened in agricultural employments, all over the State. Farmers have learned that they must study as well as labor, if they would succeed—that the mind can work as effectually as the body. They are beginning to reject the old notions which they once entertained, and to adopt new methods of managing which promise more profitable results. They have learned more in regard to the soil and the crops they would grow upon it. In almost every town we find a higher degree of cultivation—that farmers occupy less land and employ more powerful agents than in past years.

Greater care has been exercised in the breeding of stock. The custom of yearly offering the best of the flock to the butcher, and of rearing only such as are unfit for the market, we are glad to see denounced. The dairy house, the orchard, the shop, all departments of industry, give indications of improvement, as our State and County Fairs abundantly attest.

These results, and others equally important, have been produced, in a great degree, by the labors of our association, and the auxiliary efforts of our well-managed and prosperous county societies.

THE FAIR.

The Fourth Annual Exhibition was held in the city of Manchester, on the field occupied for the same purpose in 1851. The first week in October was the time assigned, and though the weather was cold and rough, the anniversary was attended by a much larger number of people than ever before assembled on a similar occasion in the State. It was estimated that thirty-five thousand persons were in attendance during its three days' continuance. The arrangements for the public accommodation, the due safety and care of the live stock, the favorable exposition of agricultural products, the fabrics of the shops, and the works of art and taste, were far more liberal and satisfactory than at previous exhibitions.

Horses.—The show of Horses was never before equalled in the State, either in the number or the character of the animals, and would compare favorably with the exhibitions in the horse-breeding States of New York or Vermont. The whole number of entries in the several classes was but little below two hundred. Of these, there were over fifty geldings and mares in harness; twelve pairs of matched horses; thirty brood mares, with foals at side; about thirty colts, three years old and under; and about fifty stallions. Among these was a large number of trotting and running horses; but none were entered as pure bloods. The Morgans were the most numerous of any breed, and next to them the Black Hawks.

Neat Stock.—In this department there was a large entry; though taken as a whole, it was not regarded as a good representation of the various sections of the State. The Devons pre-

dominated, being considered by our farmers, generally, not only the most beautiful, but the best adapted to the climate and soil of the State. There were some Durhams, a few Ayrshires, and a great number of natives and mixed breeds.

The number of Bulls, of all ages and breeds, on the ground, was about thirty, embracing many large and elegant animals. Messrs. Knowlton of Stoddard, Eastman of Gilmanton, Whiton of Holderness, Cilley of Deerfield, and Flanders of Manchester presented the best Devons. Good Durhams were exhibited by Messrs. Seward of Sullivan and Balch of Hanover. Messrs. Scammon of Stratham and Preston of New Ipswich showed superior Ayrshires. Other animals were presented by Messrs. Wright of Keene, Parker of Suncook, and Kimball of Dover.

But few Cows were found on the field; the whole number of entries being but twelve—a great deficiency in so good a grazing State as New Hampshire. The best of these were owned by Messrs. Shepherd, Bailey and Flanders of Manchester, Whiton of Holderness, Crosby of Bradford, and Hayes of Sanbornton.

There was a small but satisfactory entry of Working Oxen. The counties of Cheshire, Merrimack and Hillsborough were fairly represented, while the equally important ones of Rockingham, Sullivan and Grafton, to say nothing of Carroll and Belknap, or Strafford and Coos, presented but few.

There were but two or three entries of fat cattle.

The young stock was unusually good, though not offered in so large numbers as was desirable.

Sheep.—Our farmers have seldom shown their best Sheep at our Fairs. Now and then a successful wool-grower selects specimens from his flocks, and bears off the awards; but generally, as was the case this year, only a few have been presented, thus giving the impression that we have no superior sheep in the State. The number entered was sixty-two, and these were owned by two or three individuals.

Swine.—There were about thirty entries, embracing fifty-one animals, and constituting one of the noblest exhibitions in this department the society ever had. J. M. Whiton, Esq., as usual, carried off the palm, having most beautiful Suffolks, of all ages

and sexes. An imported boar attracted much attention. Mr. Whiton is deserving of much credit for his enterprise in breeding blood stock. He is conferring great advantages upon his native State in this particular, and we hope his efforts will meet with due reward—if not in a pecuniary point of view, in the regards of the farming community.

FOWLS.—The show in this department was quite limited, indicating that the fever has had its run in our State. Hereafter we may expect a good show, when natives and crosses shall take the place of the ungainly foreign breeds that are now most unprofitably scattered over the country.

FRUIT.—The exhibition of Fruit was superior, both in the variety and the quality presented. We have never seen so good a display of apples and pears, in New Hampshire, as was exhibited on this occasion. They were from diverse sections of the State, and were produced under very different modes of culture, and by men of varied pursuits. The contributors to this department were so numerous that we cannot particularize.

VEGETABLES.—There was a fair representation in the department of Vegetables. Gardeners make a mistake generally in bringing the *largest* of their products to the show, and the judges too often fall into the same error, by awarding premiums on such articles as they would never wish to see on their own tables.

BREAD, BUTTER AND CHEESE.—There were some forty loaves of Bread offered for the examination of the committee, and a sufficient quantity of Butter to make it palatable. There was but a small quantity of Cheese presented.

But it is unnecessary to enumerate further. It was admitted that the exhibition of farm productions, and the fabrics of manufacturing establishments, with implements, machinery, and the works of art, and all that wide variety which so much contributes to a successful and pleasing Fair, occupied a larger space, and exceeded all former expositions of the kind. They were arranged in a long hall, constructed for the purpose, extending over an area of more than 12,000 square feet.

The first day of the Fair was occupied in making entries and perfecting the arrangements within the enclosure. On Wednes-

day, the time was consumed in arranging the animals and articles presented, and in assigning the various juries to their respective departments. The examination by the judges took place on Wednesday afternoon and Thursday morning, as opportunity was afforded.

Thursday was the great day of the Fair, and notwithstanding the inclemency of the weather, brought an immense concourse of people.

The parade of the Manchester firemen at nine o'clock formed an interesting part of the proceedings. After marching through several of the streets, they proceeded to the exhibition ground with their machines, and gave a specimen of their playing. They were all dressed in uniform, and presented a fine appearance. Besides the Manchester companies, Merrimack company, of Concord, was present.

At ten o'clock the cars from Boston arrived, bringing Hon. Edward Everett, who was met at the depot by Mayor Smyth, and welcomed to the city. He was then taken in a barouche, and in company with the Mayor, Hon. Peter P. Woodbury, President of the Society, and Mr. Johnson, the Orator of the day, proceeded to the exhibition ground, where they spent an hour very pleasantly in inspecting the cattle and other stock, witnessing the trial of some of the fast nags, and in looking upon the intelligent sons and daughters of New Hampshire, with which the spacious area within the enclosure was nearly filled.

At 11 o'clock a procession was formed at the City Hall, under the direction of Col. Thomas P. Pierce, as Chief Marshal, assisted by B. B. Bunker and C. L. Richardson. The first division consisted of the Manchester City Guards, Capt. Bruce, and the Hale Guards, of Haverhill, Mass., Capt. Taggart. Both companies had full ranks, and looked well. The second division was under the command of Assistant Marshals R. D. Mooers and H. T. Mowatt, and embraced the Concord Fire Company; Merrimack Engine Co. No. 1, Capt. Brown; Niagara Engine Co. No. 2, Capt. Waldron; Stark Engine Co. No. 3, Capt. Young; Hook and Ladder Co. No. 1, Capt. Dickey; Hose and Ladder Co. No. 2, Capt. Heath. The third division, under the

command of Assistant Marshals E. G. Gilford and I. N. Haynes, embraced Massabesic Engine Co. No. 4, Capt. Haynes; Torrent Engine Co. No. 5, Capt. Richardson; Manchester Engine Co. No. 6, Capt. Lang; Independent Engine Co. No. 7, Capt. Gay. The fourth division was commanded by Geo. W. Riddle and J. H. Willard; it was composed of the President and officers of the State Agricultural Society; Hon. B. P. Johnson, Orator of the day; His Honor the Mayor, with Hon. Edward Everett, and other invited guests; City Government; Senators and Representatives in Congress; President of the New Hampshire Senate and Speaker of the New Hampshire House of Representatives; members of the New Hampshire State Agricultural Society, and citizens generally holding badges. After leaving the Hall, the procession moved through the principal streets to the exhibition ground, to listen to the address.

The procession reached the ground at about one o'clock, and marched to the stand which had been erected for the speakers. The wind blew almost a gale from the northwest, rendering it extremely uncomfortable alike for the speakers and hearers; still a very large crowd assembled to hear the oration.

At a quarter past one, Mr. Woodbury, the President, called the company to order, and the services were opened with the song "The Soil," by the "Amphions."

The President then introduced Hon. B. P. Johnson, Secretary of the N. Y. State Agricultural Society, who delivered the following address:

NOTES OF AN ADDRESS,

Delivered before the New Hampshire State Agricultural Society, at Manchester, Oct. 7, 1853, by B. P. JOHNSON, *Corresponding Secretary New York State Agricultural Society, &c.*

[The address as delivered was most of it entirely extemporaneous, but very brief notes having been made of the general train of thought for the occasion. It is given in its present form, containing, it is believed, the substance of the address as delivered, at the urgent solicitations of the Society, whose request the speaker has not felt himself at liberty to refuse. If in its present form it shall be the means of awakening the farmers of New Hampshire to the paramount importance of their profession, and to a higher and more systematic system of farming, it will accomplish what was desired in its delivery.]

Mr. President and Gentlemen of the Society:

The occasion of our meeting is one of no ordinary interest to the farmers and mechanics here assembled. Another year has passed away, and you are met to contemplate the improvements which have been effected, the advancement and progress which have resulted from your efforts. Here, also, you have the opportunity of mingling together in social intercourse, learning of each other's success and trials, and thus preparing you for more vigorous efforts for the coming year.

A distinguished statesman and farmer,* a native of New Hampshire, whose death an entire nation most deeply deplores, and whose memory still lives in freshness in our recollections, in speaking of the importance of associations of this kind, said:

"These organizations for agricultural purposes are productive of immense benefit, by bringing together farmers from different sections of the country, and enabling them by intercourse with each other to learn many things new and interesting. Were no animals (said he) presented before you—no premiums awarded —still, if the people come together, and *converse freely* upon

* Daniel Webster.

matters relating to their calling, great good will be accomplished. No man's education is complete on leaving the institution where he received instruction. The greater part of our really valuable education is secured by our intercourse with others. As the mind acts upon mind, the sparks are elicited, the flame is kindled, practice follows, and the *man progresses in his education*, until he is transported to another sphere."

And the distinguished Hungarian who was with us a short time since, when speaking of agricultural exhibitions, remarked, "That the value of these exhibitions is to be measured, not by the number of people in attendance, nor yet by the number of things exhibited, but by the *new facts* and *valuable additions* they may bring to the stock of agricultural knowledge."

Such, then, are some of the results of associated effort among our farmers and mechanics, and I trust they will continue and increase until every farmer and mechanic in our land shall be brought to realize their importance, and be personally and practically benefitted by them.

To the intelligent farmers whom I am permitted to address to-day, I am not so vain as to imagine that I shall present anything new or striking. My desire is to bring to your minds *familiar things*, to impress upon you the necessity of doing *well* what you undertake, for in this lies the secret of success. At the foundation of all improvement either in agriculture or any other pursuit, lies this one principle—"We have not done all we could;" and if we judiciously increase our efforts, we may advance and still further improve. The man who flatters himself he has reached the standard set up before him and which was the height of his ambition, will make little or no effort to advance further; but let him but feel that there is ground to be occupied which he has not attained, and he will put forth vigorous efforts to reach that position which others have occupied before him.

The first question, then, which I propose to the farmers who hear me, is this: Have you succeeded in securing all the returns which your lands are capable of yielding? Have you made all the improvements in your breeds of cattle, horses, sheep and

swine, which they are capable of receiving? These are important considerations, and worthy in my judgment of the attentive consideration of every man who hears me.

The true theory of agriculture may be comprised in a few words: Keep the lands *dry*, *clean* and *rich*. A distinguished writer says: "The following fundamental principles are those belonging to good husbandry, and with one or other of them every part of farm practice is more or less connected:

"*First*, That the soil should be kept *dry*, free from all superfluous moisture.

"*Second*, It should be kept *clean*, free from injurious weeds.

"*Third*, It should be kept *rich;* every particle of manure that can be collected should be applied, so that the soil may always be in a condition to bear good crops."

Now to illustrate these principles: In the first place, the necessity of keeping the land *dry*, in order to secure good crops, is so obvious that little need be said to enforce it. Whenever land is allowed to remain in a state of wetness, which may be either occasioned by springs in the soil or by rain water standing on the surface, the earth becomes sour, is detrimental to the growth of plants, and often prevents the proper cultivation by plowing or harrowing. The young plants, either of grain or grass, will turn yellow and become sickly, and never attain that vigorous thriving aspect which they maintained on fields properly drained. Besides, manure has not the same effect when the soil is drenched with water, as when it is dry and free from superfluous moisture. *Thorough draining* is the only remedy for these evils arising from the springs in the soil, and digging out the headland furrows, the preventative against the surface waters. Without attention to these important operations, arable land cannot be perfectly managed or full crops obtained. Good or bad management of the farm may be as correctly ascertained from the attention shown to drainage, as from any other source whatever. Where drainage is neglected, it is too often true that other defects exist. If neglected, then the benefits derived from plowing and manuring are only partially secured.

Secondly, to keep the land *clean* is all important. Weeds,

whether annual or perennial, will reap the first advantage of the manure if allowed in the soil. Their removal then is all important to the farmer's success, and should never be neglected. Their fewness will determine the character of the crop in a great measure.

Thirdly, the necessity of restoring to the soil in the shape of *manure* what the cultivated crops have drawn from it, is acknowledged by all. Manure is truly the most important agent in the hands of the farmer, and the attention given in collecting, preparing and using it, one of the most important branches of good farming. Perhaps our farmers are more deficient in this particular than the others—still the three principles stand or fall together. Without your land being *dry*, neither the advantage of good plowing nor the benefits arising from manure can be obtained. When any of the other principles are neglected, similar defects will arise. But when all are acted upon—*dry*, *clean*, *well fed*—the farmers may expect a reasonable return for the trouble and expense bestowed upon the soil. Now a system as simple as this may be easily understood by any and every farmer. Were it carried into execution—were the operations of our farmers regulated by it—were their endeavors constantly directed to keep their lands dry, clean and rich—then your farms would constantly improve.

What then in view of these suggestions shall be done? In the first place, I answer, having learned your deficiency, *apply the remedy*. Have your lands been exhausted by a ruinous course of tillage, through a neglect of a proper relation of crops and a deficiency of manures united to your land, ascertain the deficiencies which exist in your soil and apply the necessary fertilizers to restore that deficiency, keeping in view the suggestions I have made as to cleaning your lands, &c.. In a survey made with great care in one of the counties of the State of New York by a most intelligent farmer, nearly every farm was examined and its soils analyzed, and it is proved that many of the fertilizing elements necessary to produce good crops have been more or less exhausted in a great majority of the farms. Now this county is not alone in this result. What is true of this, is equally

true of most of the grain growing districts in all the Northern and Middle States, and the remedy suggested is alike needed by all. Have you ascertained that an abundance of water has prevented you from obtaining such crops as you anticipated? Then resort to drainage to restore your land to a condition where the rains and dews of heaven will exert that influence which will alone be beneficial and salutary. That great deficiency exists in this respect throughout our country is plainly observable by any intelligent man passing through it. But we have the most positive and satisfactory evidence in cases which are coming under our observation almost daily, of the immense advantage of thorough drainage. In the survey of the county to which I have alluded, it was ascertained that great loss had resulted to the farmers from the neglect of drainage. The drained lands, of which they had considerable in this county, were ready for the plow in the spring a fortnight earlier than the undrained, and this of course secured a crop as much earlier. The result in one year was, that the crops upon the drained lands were not only earlier, but much larger, and were gathered in good condition before the fall rains commenced. But in many instances upon the undrained lands, the severe rains fell while the crops were in the field, and a loss as compared with those upon the drained lands accrued of from 25 to 30 per cent. Here then is a demonstration at our hands, showing the great loss resulting from neglecting these essential requisites which *practice* and *science* together teach the farmer as all important to his success. What is true in this particular instance is true every where when a like necessity exists.

Perhaps it may be inquired, how shall it be ascertained what is necessary to recruit my soils? An analysis of the soil, which can now be had readily for a few dollars, will be sufficient to ascertain your main deficiencies, and for general purposes will answer. But in most cases your own good judgment will answer. Have you not observed that certain crops once successful upon your farms no longer yield you a reward for their cultivation? And you must certainly be satisfied that this arises from the exhaustion of the materials in the soil that at first secured

to you productive and paying crops. The inquiry then returns, what will restore the fertility? And here again the advice of the chemist will aid you.

The observing farmer must have seen that the fertilizers calculated to resuscitate his lands so as to secure a wheat crop, are not the same required for a crop of turnips. The wheat needs material to build up the straw and to perfect its berry; and this can be secured, if deficient, by applying lime, bone dust, &c., and the succeeding crops in the rotation may be increased by the manure of the farm yard, and the crop of clover in the succession with plaster may be turned under and wheat again follow in the course. In this way, land after being restored may be continued fertile, yielding remunerating and increasing crops. As illustrating this, permit me to refer to a case in Ireland, where the facts are practically demonstrated. Ireland, known to me only from the distress and poverty which prevails among her laboring classes, who seek a refuge upon our shores, is in many portions of it a most highly cultivated country. No finer lands are to be found than on the Green Isle, and when judiciously improved, no lands are more productive.

A gentleman connected with the Chemico Agricultural Association of Ulster, satisfied that by a judicious system of manuring and rotation of crops, he could increase the fertility of his soil and at the same time increase his crops annually, and secure a wheat crop every alternate year, adopted the following system. The principles upon which he commenced operations were these: He knew that plants required certain substances, organic (consisting of the bodies of plants, animals, &c.,) and inorganic, (which includes the rocks, the atmosphere, water, in short, everything that has not been the seat or product of life,) to perfect themselves.

A certain quantity of known substances are found by chemical analysis to be removed by a certain crop. That must be returned to the land in some form, if its fertility is maintained; upon these principles, together with the attainment of a proper physical condition of the soil, and the absence of all weeds, is founded the great secret of good husbandry. Many, however, of the

most valuable products are sold off from the farm, and these cannot be restored except from extraneous sources. Some of them are supplied by bone dust, some by guano, but different soils are exhausted, some of one substance, some of another. A luxuriant crop of turnips, for instance, may be raised and consumed on the ground, and wheat will not grow successfully after it without additional manure, because the turnips required little silica or phosphoric acid, while the wheat requires much of both to perfect its stalk and berry.

He adopted an eight year system of rotation: 1st, beans; 2d, wheat; 3d, turnips; 4th, wheat; 5th, potatoes; 6th, wheat; 7th, clover; 8th, wheat.

In pursuing this rotation, he applied uniformly eighty cart-loads of farm-yard manure per acre and 600 lbs. of guano or its equivalent in special manures. The farm manure was applied every other year to the green crop, and the guano or special manures to the wheat crop. This course of rotation and manuring for six years resulted in producing as the 3d wheat crop, the largest he had ever raised, 49 bushels per acre, weighing 66 lbs. to the bushel. His green crops were excellent, his beans averaging from 45 to 48 bushels per acre, and the other green crops in proportion.

The expense per acre of this system annually was for manure,	$10 80
Rent of land, labor and taxes,	22 00
Expenditures,	$32 80
The average return of crops at the market prices were per acre,	$64 60
Leaving, over expenses, per acre,	$31 80

The expense of labor by this system he considered to be much less than by any other; the land is kept in a more friable state and is more easily cleaned, (a point to which American farmers, I regret to say, pay far too little attention.)

This system, you will see, approaches very near to the culture of our gardens, which, as is well known, are ever, when properly attended to, the most productive portions of the farm.

A very excellent practical farmer in Ireland endeavored to raise wheat every second year upon the same soil, with a green crop intervening, but his experiment failed. He used turnips manured with bone dust and fed off by sheep, but his third crop of wheat began to fall off—his fourth was not two feet high, and scarcely worth harvesting. The land was then laid down to pasture for a few years, when its fertility was completely restored for another crop of wheat.

In this case, the farm-yard manure had been applied to other parts of the farm, under the notion that what would raise a good crop of turnips, must, necessarily, produce a good crop of wheat; but the latter could not grow without abundance of *silica* to support and build up the straw, whereas the turnips required very little of that ingredient. Had a portion of farm-yard manure been applied, along with a smaller quantity of bones, there is little doubt that wheat might have been grown for a much longer period, as it is likely that every other ingredient was present in the soil except *silica* and probably ten times more phosphates than what were required. Or a special application of *silica* in some cheap form, might possibly have enabled the land to produce as good wheat as at first.

I have adduced these examples for the purpose of impressing upon the farmers who hear me the importance of understanding how to arrange their crops and apply their manures so as to produce the most profitable results—for the farm, unless it can be *made profitable*, fails to accomplish what the farmer wants.

Again: let me call your attention to the rearing of stock.—Many of our farmers say the old fashioned native stock of our country are better than all others. Without discussing the question as to the native stock, so called, the best of which has undoubtedly been made so by a *cross* at some period with *improved animals*, let me inquire, is it certain that this stock may not be improved, and the farmer be greatly benefitted?

Is there a farmer who hears me who has ever made the experiment in fattening a three year old steer of the native breed and one of the improved short horn breed, and has found no difference in the cost of feeding and the weight when brought to the

scales and the value of the carcass when it has been sold in market?

Is it not true, as a general proposition, that our native stock cannot be profitably fattened at that age, but must be kept until much older, before they are ripe for the butcher? Now to me, it is a most important question whether the animal can be fattened for market at three or six years old, for if at the former age, then the farmer has the advantage of turning two animals of nearly the same weight each, instead of one, without much additional expense. This is a matter of no little moment to the farmer, and one that comes home to his pocket, *where*, after all, the question is to be settled. *Which will pay best* is the all important inquiry—and that experience has settled conclusively in England—and is receiving so many demonstrations in this country that it cannot long be considered a question here. Let every farmer who hears me to-day carefully consider this question before he makes up his mind that he is not deeply interested in the improvement of his stock.

The fattening of cattle and sheep for market is already a very important matter for the farmers of the East, and will become more and more so as the grain fields of the great West are opened, so as to compete more fully with us than at present; and we shall need every possible advantage to enable us successfully to compete even in this branch of the farmer's pursuit.

Did time permit, I might extend this portion of my remarks to the animals for the dairy and the plow, but I must forbear, with a single illustration on the subject. A farmer of my acquaintance informed me frequently, some years since, that there were no cattle in the world *equal to our native breed.* Without disputing the question with him, as I was satisfied he did not understand the subject, I called his attention to a description of cattle in Great Britain which he had never seen. (The black cattle of Scotland, West Highlanders and Polled Galloways.) I described to him their qualities, their hardiness, as well adapted to the hilly regions of our State and to all New England, their fine handling properties, *mellow hides*, great fattening properties, fine marbled meat, and that placed uniformly on the most valua-

ble parts, commanding the highest price in market, and with but a small proportion of inferior coarse meat and but little offal. I furnished him with a description of these cattle, which had been published in the Transactions of our Society, which, when he had carefully read, he said, these are the cattle I should like, and the Legislature ought to appropriate $10,000 to enable your Society to introduce them into our southern tier of counties and on our mountain pastures. The succeeding year this gentleman was present at our Annual Exhibition, where we had huge native cattle with mountains of fat, patchy, ungain animals at the best, and we also had some improved cattle, both thorough bred and grades, which met my views of what were good animals for the shambles.

I desired him to make the examination of the animals upon the ground, and after examining them carefully and critically to inform me, if he had no objection, which was the best animal on exhibition. He did so, and informed me that he had selected a white-faced heifer from one of our western counties, which in his judgment came up well to the standard of what a good animal should be, (and he supposed from her appearance, and the locality from which she came, that this was a native heifer.) I appreciated his good judgment, and said to him, the judges on stock had decided that this was the best animal on the ground, and that she was a *thorough bred Hereford*, a breed with which until then he was not acquainted. Although his judgment of native cattle was somewhat staggered by this case, he acted like a man of sense, and determined to test these improved animals, as they were called. I have seen that gentleman frequently since, and he is now yearly fattening large numbers of *grade short horn steers* from Kentucky and Ohio, and says he can do better with them, fatten them quicker, turn them oftener, than he had been able to do previously with his stock, and that they pay better than any he has ever had. There is after all, he said, "much in the *mellow soft hide* of these animals that makes them take on flesh so much quicker than on *hard hided, sole leather cattle*."—Here is a convert of no little worth. He knows of what he speaks, and his practice will make other converts wherever he is known.

I might illustrate this principle in the breeding of sheep and swine, did time permit.

I am happy to say that your Exhibition shows that you are not inattentive to the suggestions I have made, and almost seems to have forbid the necessity of these remarks, and did I not know that the few comparatively engaged in your Society in rearing improved stock are but a small minority of the whole population, I should have forborne them. I indulge the hope, however, that their example will prove like leaven to the three measures of meal, and will ere long exert a most important and salutary influence upon your State at large.

The world is in a stage of progress, and although I do not consider that all that is *called progress* in this age of excitement is real progress, still if you would succeed you must not be insensible to the *real* advancement that is taking place in every department, not only in this but other countries.

From a somewhat extended examination of some of the best agricultural districts in England in 1851, I was enabled to witness the complete carrying out of the principles I have presented before you to-day. The perfection with which every department of the farm is carried out is worthy of all praise, and should be adopted by farmers in our country as far as practicable. The preparation of the ground is performed with the greatest care, the earth thoroughly pulverized with straight and uniform furrows, by the plow, followed by the cultivator, harrow and clod crusher, until the earth is completely mellowed. The manure is liberally applied, specially adapted to the crop to be grown; the grain generally, I may say, drilled in, with manifest advantage both in the saving of the seed and in securing a better crop. When spring opens, and weeds make their appearance, they are entirely removed by women and children, or by the horse hoe, when the crops are drilled; and the fields of grain present a neatness equal to the best cultivated gardens. I inquired frequently of farmers, why all this care in removing the weeds from the growing crops. The answer uniformly was—"*I cannot afford to grow weeds.*" It costs too much labor and too much money; and the farmer thus devotes his labor and money to *se-*

cure a crop of grain, and to *exterminate* a crop of weeds. I said to these farmers, if this was a test of poverty, the inability to live with a crop of weeds growing, my country must be a very thriving one, *as we grew weeds in great abundance.*

But I ask you, farmers of New Hampshire, is it not wise to follow this example, and no longer leave the best portion of your lands to be occupied by injurious weeds; for just in proportion as you allow the weeds to prevail, your crop on which your labor and care have been bestowed, will in like proportion be diminished? It appears to me that there is but one answer to be given to this question, by every intelligent farmer whom I address; and I will not so far distrust your intelligence, for a moment, as to doubt that, being convinced of the folly of a course like this, you will hereafter inscribe upon your door-posts, as one of the maxims never to be forgotten, "I am too poor to grow weeds."

It is a sight almost of itself worth a voyage across the Atlantic, to witness the fields of wheat ripening in all their golden beauty, and ready now for the *American Reaper.* They afford a rich reward for the labor and toil of the farmer, such as never will be secured by the careless and indifferent cultivator. I do not intend to convey the impression that all the farming of England and Scotland is of the character I have described; but I believe a majority may be said to be of that character, and additions are yearly being made to the ranks of the improving and systematic farmers.

While on the subject of English farming, I am reminded of the Great Exhibition, at which I was privileged to be present as a Commissioner from my own State; and although it will be a deviation from my course of remarks, perhaps a brief allusion to it will not be uninteresting.

I arrived in London a day or two previous to the opening of that Great Exhibition of the Industry of all Nations, and was present when the Exhibition was opened by Her Majesty the Queen of England, with all the pomp and magnificence due to so great an event in the history of that country and of the world. In the early stages of the exhibition, as you doubtless recollect,

from the accounts which reached you through the public press, the contributions from this country received but little attention, and that of not the most flattering character. The visitors for several weeks were confined altogether to the nobility and persons of wealth, who could afford to pay their three guineas (upwards of $15) for a season ticket; and their remarks upon the contributions deposited on the "Prairie Ground," as the United States quarter was called, were not very commendatory, as you may imagine. The strange implements, so different from theirs; the grain reaper, unknown to them; the light but neatly made plow, and various other useful implements, were subjects of remark. They were called "queer looking things"—"might do for a *new* country, but would not do for England," &c. We were subjected to this course of remarks for weeks; but those of us who knew the value of our contributions, were quite willing to "bide our time," knowing that when an opportunity should be given to test our articles, they would prove to be as well adapted to an *old* country as to that *new one* from which they came, and which, in the minds of most of those who visited the palace, was a country in which civilization had but just excluded the savages from our homes and our dwellings.

When the jurors, in the discharge of their duties, visited the U. S. department, it was their province to ascertain what was claimed for the various articles, their prices, uses, &c. This, of course, led to an explanation by the persons in charge; and the impression soon began to gain ground, that those "queer looking things" were worth looking at, even though occupying the "Prairie Ground." Chubbs' famous thief-proof English lock had been picked in a few minutes by Hobbs, an American. Herring had exhibited a safe, locked with an American lock, and had deposited in it £200, with liberty to any one to take the key and open it if they could. It remained unopened forty-five days, and Mr. Herring took his money home with him.

These and other occurrences, which I have not time to allude to particularly, had much influence in leading the people to *think*. I heard it said often, when looking at the offer of Herring, "These people must be in earnest; the money is deposited,

and if we can open the safe, it is ours." But the safe was not opened. The American lock, then, was *not a very poor thing, even for a new country.*

After a few weeks, when the prices of admission were reduced, the farmers and mechanics from all parts of the kingdom thronged the palace in almost countless numbers. This class of people were interested in the American articles. They were obliged to calculate, day by day, how they were to live from the proceeds of their labors; and they desired to know if the American implements and machinery would aid them in reducing their expenses—a matter of great moment in Great Britain. When we assured them of the merits claimed for them, they said, "If you can perform what you promise, then these are the things we want."

It is certainly to the credit of the English, as a nation, that though strongly prejudiced, if you please so to term their opinions of every thing made in England, which is considered better than any body else can make, still, when the trial came, and our implements performed as we assured them they would, they yielded promptly and with great readiness to evidence. We performed as we had promised, and they were satisfied. The first trial that we had was with our plows. A very erroneous idea prevailed among those who visited the exhibition in regard to our plows. They were so different from the English plows, so light in structure, and so much shorter, the impression was very general that they would not succeed. The following description of our plows appeared in the leading monthly agricultural magazine in England during the exhibition. After describing the defects of the agricultural implements exhibited from the continent, the writer remarks: "This is also peculiarly noticeable in the American plows, which, with the exception of varnish and high finish, reminded us of the *prints in agricultural works*, intended to represent plows that were used *several hundred years ago.*"

It was under all these disadvantages that the trial was had; but the result proved that what had been affirmed by us of our plows was practically true. The trial ground was a moderately stiff soil, with light sod, and the depth and width of the furrow was fixed at six and nine inches. When the first American plow was

brought on the ground for trial, the interest manifested was very great. A large number of farm laborers, as well as farmers, were gathered around the plow, and the expressions I heard around me from them were—"That plow wont go in," "That plow will break," and others of a similar character, all showing that there was no expectation that it would succeed. I had an American with me on the ground to hold the plow; but the gentleman on whose farm the trial was made advised that his plowman, who was well versed in his work, should hold the first one, and I consented. The plow having been arranged to cut a furrow of the required depth and width, as near as it could be done, the team was started. The plowman, unused to a short plow, pressed his whole weight upon the handles, to keep it in. I desired him to let the plow take its own course, merely steadying it; and it went through its work with great ease, both to the plowman and team; and when he returned to the starting point, the men gathered round the plowman and inquired of him how the plow held. Being a little excited, probably, at being directed how to hold it, he replied, rather sharply, "It would have held itself, if I had let it alone." The question then was settled that the American plow "would go in," and that "it wouldn't break."

An English farmer obtained of me the privilege of trying one of our American plows with a single horse, as I had assured them a single horse would answer with one of our light plows. He plowed with the same depth and width of furrow, with a large farm-horse, with apparent ease, and to the evident gratification of a large concourse of spectators, who watched him with no little interest. When he had concluded, to the satisfaction of all, he remarked that it was immaterial to him what the jurors thought of the American plow; *that* was the plow the English farmer wanted, and he would have it, if Mr. Johnson would sell it him. I did sell it to him, and ordered many more before I left England for English farmers; and many a field, I doubt not, is being turned over by the American plow, notwithstanding they reminded the editor of the journal of pictures of plows *several hundred years ago*. So much for the queer looking plows, that "would do for a *new country* and to *plow around stumps*."

But I must pass to the Reapers; and I will give you an account of the great triumph of McCormick's Virginia Reaper. There were but three reapers on exhibition—McCormick's and Hussey's American, and an English pattern of Hussey's. The trial was had on the 24th of July, on the farm of S. S. Mechi, in Essex, about 45 miles from London, on the day selected for Mr. Mechi's annual gathering of distinguished agriculturalists to inspect his farm and mode of culture. The day proved very unfavorable, raining incessantly. The wheat upon which the trial was made was quite green, and of very remarkably heavy growth, the ground softened by the rains, and every thing as unfavorable as it could well be. There were from 150 to 200 gentlemen present, many of whom had come a distance of 300 miles to witness this trial.

The sub-jury to conduct the trial consisted of Col. Challoner, one of the English jurors, Baron Merten d'Ostins of Belgium, and myself. The first machine tried was Hussey's, which did not succeed, as it was clogged very soon with the wet and heavy grass and grain. After this had been tried, and failed, it was proposed by one of the jurors that, as every thing was so unfavorable, the other reaper should not be tried; but I insisted that the other American Reaper should be tried. The gentlemen present expected it, and I was not willing they should leave the ground without being satisfied that the American Reapers would perform the work which it had been affirmed they could do. McCormick's Reaper was then brought up, and this, as you may well imagine, was a moment of no ordinary interest, especially to the few Americans who were there. One reaper had not operated as we hoped and expected; another, and the only remaining American Reaper to be tried, was now to be tested. The gentlemen present, distinguished agriculturalists, were anxious that something should succeed that would cheapen the gathering of their crops; but from expressions made by the gentlemen around me, I was satisfied they had no confidence in the Reapers. They said after the trial of the first reaper, "It is as we expected; they will not work *until perfected by an English mechanic.*" The laboring men, too, when the first reaper started, seemed per-

fectly astonished, fearing their vocation was gone; but when it failed, they brightened up, and would doubtless have given vent to their feelings, if another one, which had been ridiculed in the London Times and other journals, as "a cross between an Astley's chariot, a treadmill and a flying machine," was not ready for a trial. The machine was started; after it had passed its length, the clean path made by the reaper, the grain falling from its side, showed that the work was well done, the reaper triumphant. After proceeding as far as was deemed necessary, the team was stopped, and Mr. Mechi jumped upon the platform and said, "Gentlemen, here is a triumph for the American Reaping Machine. It has, under all its disadvantages, done its work completely. Now let us, as Englishmen, show that we appreciate this contribution for cheapening our agriculture, and let us give the Americans three hearty English cheers." They were given, and with a fourth added, with a will that showed they were most heartily given. It is due to the reaper we used that day to say, never have I seen a reaper do its work better than it performed its work at the trial.

The result of this trial sped with lightning speed over the whole country, and gave a new turn to affairs; and on the return of the Reapers to the Palace, crowds were continually examining them, and the American Department from this time until the final close of the Great Exhibition was no longer the "*Prairie Ground*" but was the *observed of all observers*. The London Times, whose agricultural reporter was present, gave one of the most full and interesting accounts of the Reaper and of the trial that has been published, and subsequently in an article in the Times it was said "that every *practical success* of the season belonged to the Americans; their contributions showed poorly at first, *but came out well upon trial.*" And again—"It will be remembered that the American Department was the poorest and least interesting of all foreign countries. Of late, it has justly assumed a position of the first importance, as having brought to the aid of our distressed agriculturists a machine which, if it realizes the anticipations of competent judges, will *amply remunerate* England for *all the outlay connected* with the Great Exhibi-

tion. The reaping machine from the United States is the *most valuable contribution from abroad* to the stock of our previous knowledge, that we have yet discovered."

To show that these expectations have been realized, it is only necessary to remark that the present year at least fifteen hundred reapers are said to have been manufactured and disposed of in Great Britain.

I will not prolong my remarks on this subject. I might allude to many other matters that doubtless would be interesting to you; such as the triumph of the American yacht, Hobbs opening of Bramah's celebrated lock, for which he received two hundred guineas; but I have said enough to show you that in that great contrast where the products of the world were exhibited, we have no occasion to regret that we met the nations of the world, and the result shows that the influence of our free and untrammelled institutions upon the human mind has placed us in a position at least equal to any.

A few suggestions to the farmers of New Hampshire and I shall close these desultory remarks. To enable the farmers of our country fully to avail themselves of all the facilities for improvement that are now fortunately before the public, they must become reading and thinking men, as well as working men. The mind must be cultivated, and those noble powers entrusted to us for the highest purposes must be brought into action and when this is done, no pursuit in our country will be conducted with more skill and success than that of the American farmer. There is to be found in our agricultural works now open to every one, much that is valuable and useful to a thinking and observing mind, and let me urge upon you the great importance of opening your mind freely to truth and experience, and not to reject, *without examination* and good and sufficient reason, those improvements, which the experience of others has shown to be both beneficial and economical, and worthy of consideration.

I would urge upon your most serious consideration the importance of a system of education that shall give the instruction which the farmer's sons and daughters need, to enable them rightly to discharge the high and important duties that devolve

upon them. You need not be alarmed at the idea of "Book Farming," which has proved such an obstacle in the way of the farmer that often he will not read himself or encourage it in others, lest he shall be styled a "Book Farmer." No system of education, in my opinion, will meet the just demands of the farmer that does not combine "*Practice and Science;*" and what, let me ask you, is to prevent you from having this? Is there any inherent difficulty in the way? Cannot your children be educated in all that science can teach, and at the same time put in successful practice upon the farm all that science has taught? I hesitate not to say, this can be done, and that it is a duty the American farmer owes to himself and to his country to have it done. To effect this is but for you, the great producing interest of the country, the men upon whose success every other pursuit and profession of our country in an equal degree, at least, depends, to make their wishes known, and depend upon it, when you enlist in this matter in earnest, your representatives will not, dare not pass by your request unheeded.

And what nobler work, I ask, can the statesmen of our country engage in than this most noble one in which are involved the best interests not only of our country, but its very existence as a free and independent people? What, I ask, are the safeguards of our liberties; are they our fleets and armies, or are they not rather the intelligent, independent freemen who cultivate our hills and valleys, and rear the noble and independent freemen who are to decide, when the day of trial comes, if it ever shall, (which may God in his own kind Providence avert,) whether we shall be freemen or slaves? Let me say to you that the time has come, in my judgment, when this subject should be pressed home to the consideration of our rulers; when they should be called upon to do something worthy of the nation for this great and all important cause.

We can spend millions to educate men for the army and navy —neither could subsist without the farmer—and when we ask to give the great producing interest of our country a place among the objects worthy of attention, we are quietly told "they can best take care of themselves." I know they *do take care of*

themselves, not only, but of all other classes. Let them but for a single season abandon their fields and forsake the plow and the harrow, and where will you find the rest of our population?

Let us, then, insist upon having the proper requisites for an education suited to our wants and necessities, and soon the experimental farms will be seen scattered over our whole country, occupied by our sons, where the questions of so momentous interests to you and yours will be investigated, discussed and solved. Let me, then, impress upon you the vital importance of attending to this subject for your own personal advantage; for the welfare and happiness of your children; for the glory, honor and preservation of your country.

We are living in a day, my friends, of no ordinary interest, and a responsibility is imposed upon us that may well make us pause and inquire how shall we best relieve ourselves from it. I answer, it can only be done by improving ourselves, elevate our profession, place it by education and other advantages in the front rank, where it of right belongs, and demonstrate to the world the great truth yet to be taught, that in this free government of ours, the *producing man, the laborer, has a right to be, can be, shall be as intelligent as any class of men who inhabit our world.* Already you are far in advance, in this respect, of the old world, but yet you see much remains to be done before you shall reach that commanding position and influence where your example will go like the electric fire and arouse a world.

(The speaker gave a brief description of the laboring population of England, and the contrast, and the views of gentlemen abroad as to our own population, when compared with theirs.)

The eyes of the world are upon us; our free institutions are having their influence upon the destinies of the old world. The progress we have made under the benign influence of peaceful pursuits, in little more than half a century, has astonished the world; and if we, by the intelligence of our population, shall continue to advance, as we may, and carry out successfully the great problem of a free government which we have begun, another half century will not pass by without seeing *liberty* the watch word, not only, but actually enjoyed by a large portion of the world.

Let us see to it, then, that in all we do, we keep steadily in view the great principle of progress, and stop not until the farmer at the plow, if called, like Cincinnatus, to preside over the destinies of his country, may be prepared to fill that important position as well as any man in our country. His mind matured by education, he will be enabled from the farmer's field and the fireside to conduct the great concerns of this mighty nation as well as to manage the concerns of his own household. Let but the farmer be thus prepared, let but peace prevail, and our example will prove the beacon light that shall attract the inhabitants from every country and clime, and they too shall become intelligent, independent and free.

Never have I appreciated our free institutions as I have when travelling in foreign lands; our every act is canvassed, our faults blazoned to the high heavens, while our virtues are acknowledged 'tis true, by some. But how important, that those who represent us abroad should be true representatives of our free institutions at home, instead of imitating the whiskered baboons of the continent. Instead of conforming to the habits of monarchical courts, and deck themselves in the gewgaws and finery of titled courts, let them show to the world that the freemen of America are to be esteemed by the worth of the mind and the man, and not by the coats they wear.

Gentlemen, I have, I am sensible, much too long detained you from the treat that is in store for you. The distinguished gentleman* who is to follow me, whose fame is confined not to our country, but the whole world acknowledges his talents and his eloquence, will amply repay you for the time which has been spent in listening to these undigested remarks of mine.

* Hon. Edward Everett.

MR. EVERETT'S ADDRESS.

When Mr. Johnson closed his oration, Hon. EDWARD EVERETT, of Massachusetts, was introduced by the President, and spoke as follows:

I am greatly indebted to you, Mr. President and fellow-citizens, for this very kind reception. Though personally known to very few of you, you will not allow me to regard myself as a stranger. Though it has never been my good fortune before to do any thing more than pass through Manchester with railway speed, your cordial welcome has made me feel myself at once at home. With this simple acknowledgment of your kindness, Mr. President, I feel as if I ought to stop. This is the husbandman's festival, celebrated under the auspices of the New Hampshire Agricultural Society. Your Executive Committee was good enough, early in the season, to invite me to pronounce the usual annual address on this occasion. I felt greatly honored by the request, which, however, more than one prevailing reason compelled me to decline; and so acceptably has the duty been performed by the gentleman who preceded me; so much has he instructed and interested us in his very appropriate discourse, that I cannot but congratulate you and myself that it devolved upon him and not upon me. I feel it somewhat presumptuous—being neither a scientific nor practical farmer—to intrude myself at all before an audience like this, and in the presence of those so much better able to occupy your time to advantage. My best apology will be, not to occupy much of it, and not to presume to dwell upon matters which must be so much better understood by others.

Mr. President, though it has not been my good fortune to be personally much acquainted with this part of your State, I have early associations of the most kindly and agreeable nature with another part of New Hampshire. In the spring time—not of the year, but of my life—I was sent into it in pursuit of a species of culture, which you will allow to be not of inferior importance to that of the soil; I mean the culture of the mind. I

was sent for a short time, when quite a lad, to the Academy at Exeter, and the only regret that mingles in my recollection of it is, that I did not longer enjoy the advantages of that excellent institution, and the paternal care of its beloved and venerated Principal, Dr. Abbott. Yes, sir, if you will pardon me this reminiscence of my boyhood, I remember, but as yesterday—for it was the first time I ever left the parental roof—being called at about four o'clock in the morning, in the month of February, to get ready for what was then thought a hard day's work — the journey from Boston to Exeter. When a boy between twelve and thirteen starts alone before daybreak in the winter to go from home to a boarding school, the distances do not seem particularly short. They seemed the longer to me from a slight misunderstanding of the information derived from the stage driver. This was a person who had driven a long time on the road, was well known to the Academy boys, and had got rather weary of answering their perpetual enquiries, how many miles it was from one place to another along the route. His name was Prime, which we saucy youngsters converted into Priam—pestering him with occasional witticisms (which he took in very good part,) about the siege of Troy. He took his revenge by mystifying us about the distances. Wherever we were, the answer was always the same; whether we asked the question at Haverhill, at Atkinson, or Plaistow, or Kingston, how far it was *now* to Exeter, it was always "about three miles."

I have said, fellow-citizens, that I had the misfortune to be a stranger at Manchester; in those days *you* were all strangers at Manchester too; Manchester did not exist. It is one of those cities which have sprung up like an exhalation from the soil, at the bidding of capital, enterprise and skill, availing themselves of the creative forces of nature. In those days, sir, that is—but I will not tell you how many years ago—we knew Manchester only as Amoskeag Falls, and by the everlasting advertisement which filled the newspapers relative to the construction of a canal around them. But it was a famous spot, sir, even in a state of nature. The children of the forest had selected it as a chosen seat, even before the foot of civilized men had pressed

these shores. It was one of the favorite abodes of Passaconaway, as you reminded me an hour ago—the great Sachem of the Pennacooks, the powerful tribe which occupied the banks of the Merrimack and the Piscataqua. I can never reflect, sir, without some emotion, that not two hundred years have passed since these fair regions were occupied by races of fellow beings that have disappeared from the surface of the earth. We are told that Passaconaway passed for a wizard, inasmuch as he could produce a green leaf from the ashes of a dry one; a live serpent from the skin of a dead one—could make water burn, and trees dance. Well, Mr. President, without laying claim to witchcraft, the modern arts are competent to the performance of most of these wonders. I am not aware indeed that we can produce a living serpent from the skin of a dead one; it is not a breed that there is any great motive to propagate, and very few experiments, I suppose, have been tried since Passaconaway's time. But I think this Agricultural Society has labored to very little advantage, if it has not showed how a green leaf can be produced from the ashes of a dry one. I am sure the chemists over at the mills can resolve water into combustible gases; and as for dancing trees, it almost took away my breath to witness the rapidity of their motion as I came down this morning by the express train. There is no witchcraft or necromancy like the mechanic arts. By what simple contrivance of Indian jugglery poor Passaconaway performed his tricksy wonders, we do not know. In those days the white man, as well as the red, was more remarkable for what he did not perform in the way of the arts, than for what he did; for we are told that after corn and wheat had been imported into New Hampshire from Virginia—in the earliest days of the settlement—they were obliged to send it from this part of the world to Boston to have it ground at the Boston wind-mill, that being the only mill in this part of the country. This sounds strangely enough at a spot where we can hear the rush of the Merrimack over yonder mighty water wheels. In fact, sir, the annals of New Hampshire are filled with romance of every description, from the times of Gorges and Mason, and their high-sounding grants of "Mariana" and "Laconia"

—the primitive settlement of "Strawberry Bank"—the advent of Mr. Wheelwright, the resolute founder of Exeter, who was Cromwell's fellow-student at Cambridge, and his most formidable competitor at foot-ball, in which manly sport he was accustomed to trip up the future protector's heels—down through the pleasant and prosperous days of the union with Massachusetts—and then the bloody series of the Indian wars.

It is almost beyond belief, sir, that a hundred years have not passed away since that pathetic tragedy in domestic life was acted within the limits of New Hampshire; I mean the captivity of Mrs. Jemima Howe and her children. I believe the first time my blood was ever stirred by any tale of profane history, was when I read that narrative in the American Preceptor—"As Messrs. Caleb Howe, Hilkiah Grout and Benjamin Gaffield, who had been hoeing corn in a meadow west of the river, were returning home a little before sunset to a place called Bridgman's fort, they were fired upon by twelve Indians, who had ambushed their path, on the 27th of July, 1757." That is the way the story begins; there is nothing in the Waverly novels that surpasses in interest the subsequent adventures of Mrs. Howe, in the captivity of herself and children among the Indians and Canadian French less than a century ago.

At that time, sir, the greater part of the extensive domain so beautifully represented at this exhibition by all the products of agriculture, animate and inanimate, still lay in a state of nature. It was impossible that settlements should penetrate far to the West and North along such an exposed frontier. The interior condition of New Hampshire, as of most of the other colonies, was dependent at that time on the struggles of the great monarchies of Europe. The downfall of the French power in Canada removed the terror of Indian warfare; the establishment of our own independence called out all the hidden energies of the American character; and commerce and the fisheries on your coast, agriculture and manufactures in the interior, with the aid of labor-saving machinery, the railroad and the locomotive have done the rest. They have converted the "howling wilderness" into gardens and corn-fields and thriving towns and cities, and

have brought your State to the condition of high prosperity in which we now behold it, and in which, as it seems to me, you have no occasion to envy any of your sister States.

On your western boundary you have the noble Connecticut, queen of the rivers of New England; bordered by a line of railroad almost from your northernmost limit to Long Island Sound, giving you a broad belt of fertile land on its banks, and a direct communication with the great commercial metropolis of the Union. The railroads which traverse the centre of the State, and that which is just opened from Portland to Montreal, through your north-eastern territory, place you in immediate communication with the St. Lawrence and Canada. At the mouth of the Piscataqua you have one of the best ports and harbors in the United States; and where in the world, for its length, is there a stream which excels this admirable Merrimack?—whether we consider the beautiful lake in which it takes its origin; the fertile meadows that are watered with its upper tributaries; or the industry, enterprise and creative capital concentrated at its falls; Hooksett, Manchester, Lowell, Lawrence, the four great flights of stairs, by which the genius of your prosperity goes down from his mountain throne to the sea, scattering blessings as he descends. Why, sir, there is not a streamlet which leaps from the rocks and mingles its waters with the silver surface of your matchless lake; no, not a drop of dew condensed in the dark forests that surround it, that can find its way to the ocean, till it has contributed its share to move, one after another, fifty water-wheels, and by the products of their motion, to clothe hundreds of thousands of men in remote communities, and give an impulse to the commerce of the world.

And then, sir, for natural beauty. I have been something of a traveler in our own country—though far less than I could wish—and in Europe have seen all that is most attractive, from the highlands of Scotland to the golden horn of Constantinople; from the summit of the Hartz Mountains to the fountain of Vaucluse; but my eye has yet to rest on a lovelier scene than that which smiles around you as you sail from Weir's Landing to Centre Harbor. I have yet to behold a sublimer spectacle than

that which is disclosed from Mount Washington, when, on some clear, cool summer's morning at sunrise, the cloud curtain is drawn up from nature's grand proscenium, and all that chaos of wildness and beauty starts into life—the bare granitic tops of the surrounding heights—the precipitous gorges a thousand fathom deep, which foot of man or ray of light never entered—the sombre, matted forest—the moss-clad rocky wall, weeping with crystal springs—winding streams, gleaming lakes, and peaceful villages below—and in the dim, misty distance, beyond the lower hills, faint glimpses of the sacred bosom of the eternal deep, ever-heaving as with the consciousness of its own immensity—all mingled in one indescribable panorama by the hand of the Divine Artist.

And how can I speak of the historical legends—of the industrial resources—of the natural beauties of New Hampshire, parent not of fruits only, but of men—without remembering the great and good men who adorn her annals—her immortal Stark, who cheered the heart of the nation at the lowest ebb of despondency, and led the way at Bennington to the triumphs of Saratoga—your Sullivan, your Poor, your Scammell, your Dearborn, your McClary, your Pierce—who from Bunker Hill to Yorktown heard every peal of the trumpet, and breasted every storm of war; the long line of your civilians—your Weares, your Bartletts, your Whipples, your Thurstons, your Langdons, your Gilmans, your Smiths, your Masons, your Woodburys; your men of letters and divines—your Wheelocks, your Belknaps, your Buckminsters, your Abbots? How, especially, can I forget him, whose decease not a twelvemonth ago filled the whole land with sorrow, while, in the sublime language of your fellow-citizen, the President of the United States, "the great heart of the nation beats heavily at the portals of his tomb." He was the offspring of your soil, he and his fathers. His infancy was cradled in the hardships of your frontier settlements; he was taught and trained in your schools and your college. You sent him forth in the panoply of his youthful strength to the service of his country, and after the labors and the conflicts of life you rose up as one man to welcome him, when but two years ago, on his anni-

versary, he came back, melting with tenderness and veneration, to revisit his native State!

Mr. Everett concluded with a renewal of his acknowledgments to the company. He was frequently interrupted with enthusiastic applause, and at the close of his eloquent remarks three more hearty cheers came forth spontaneously from the assembled multitude.

EVENING SESSIONS.

On two evenings during the Fair, meetings of the Society were held in the City Hall, for the purposes of discussion and the transaction of business. The President, Hon. PETER P. WOODBURY, on taking the chair at the first meeting, made the following remarks:

Gentlemen of the New Hampshire State Agricultural Society:

I congratulate you upon our flattering and prosperous position and prospects. Our exhibition at the present time, as a whole, is far more in quantity and quality than could reasonably be expected.

In a pecuniary point of view, we are aboveboard. You will remember we have no resources but our individual exertions. We have surmounted the great difficulty—we have solved the great problem. The *farmers* of New Hampshire can hold agricultural fairs, and sustain an agricultural society, without foreign aid.

The agriculturalist, to be permanently successful, must understand the soil he cultivates—its chemical analysis; he should have a perfect knowledge of the chemical composition of his manure and the vegetables he wishes to grow. Without a possession of this knowledge, the farmer's labors are attended with many failures and embarrassments. But with a good knowledge of them, he may depend on accomplishing what is desired, and with as much certainty as in other operations which are carried

on in accordance with the requirements of science. The agriculturalist should not only have a correct knowledge of the soil on which he lives, the animals which he would breed, the vegetables he wishes to grow, and their peculiar adaptation to the location and temperature; but he should have a good understanding of his own organization, in an anatomical and physiological point of view. He should know the organization and construction of the animals he desires to breed, the great and eminently successful science of crossing breeds, and the manner, time, place and plan of accomplishing so desirable a result; which science, of itself, would amply pay the people of New Hampshire for all their previous expense. He should have a correct knowledge of geology, mineralogy, botany and zoology, even to the smallest insect of the earth and of the atmosphere.

Gentlemen, I have represented to you the scientific and practical agriculturalist as the most scientific man of the land; and so he is. There is no man who possesses so much scientific and practical knowledge as the thoroughly educated farmer.

The subject of scientific agriculture should be brought more directly into our common schools and colleges; and I am happy to hear that our own college, Dartmouth, that Harvard, and other colleges, are reducing, teaching and applying the various sciences to agriculture and the mechanic arts; and this is as it should be. Our children should be instructed in agriculture and its kindred sciences, as well as in other sciences. By these instructions and facilities, the sciences of agriculture and mechanics will become common knowledge, and our sons and daughters will take as much pleasure in studying and practicing them as in the other sciences.

On motion the following persons were apppointed a committee to nominate a board of officers for the ensuing year:

Hillsborough—Richard Boylston of Amherst, Brooks Shattuck of Bedford; Grafton—Thomas Merrill of Enfield, A. B. Closson of Hanover; Sullivan—E. J. Glidden of Unity, Geo. W. Blodgett of Claremont; Cheshire—Milan Harris of Nelson, Edmund Prouty of Nelson; Belknap—H. J. French of Meredith Bridge, William Hayes of Sanbornton; Merrimack—Cyrus Bar-

ton of Concord, Levi Bartlett of Warner; Carroll—Francis R. Chase of Conway, Obed Hall of Tamworth; Rockingham—Moses Eaton, jr., of South Hampton, J. L. Cilley of Exeter; Strafford—Jacob H. Ela of Rochester, Wm. F. Estes of Dover; Coos—Morris Clark of Whitefield, Geo. Bellows of Lancaster.

The Treasurer, Hon. Frederick Smyth, made his annual re-report, which is printed in this volume.

REMARKS OF WM. S. KING, ESQ.

Mr. King of Boston being in the Hall, was loudly called for, and coming forward, spoke nearly as follows:

Mr. President and Gentlemen: The question whether or not farming, as a pursuit, pays those engaged in it, I do not intend, to-day, to discuss. It is sufficient for my present purpose, to assert and maintain that it does not pay, in proportion to the mental, physical and pecuniary capital invested in it, as do other professions.

Gentlemen, we are all agreed that farming ought to pay, whether it does or not; and, further, that it may be made to pay. The question now is, *how* it may be made to pay. I answer: *By raising maximum crops, at the minimum of cost to the owner and to his soil.*

The agricultural statistics of Rhode Island (which State is the only one whose agricultural statistics are complete and reliable,) show that the largest yield of carrots in the State, in the year 1850, (a bad year for root crops, by the way, because of the drought,) was one thousand bushels to the acre; while the average yield was four hundred bushels, and the least amounted to seventy-five bushels, all told. Of onions, the largest crop was six hundred bushels; the average, four hundred; and the smallest, one hundred bushels to the acre. Of Indian corn, the largest yield per acre was one hundred bushels; the average, thirty and a half bushels; and the least, six. Of rye, the largest crop grown on an acre was forty bushels; the average was twelve

and three-quarters, and the smallest was—what think ye?—just three bushels!

Now, gentlemen, though we can easily see that it will well pay to gather these maximum crops, if economically produced, we can scarcely believe that they more than make the two ends of the year meet, who raise but the average, while how the wolf is kept from the door of those who persist in getting such crops as six bushels of corn or three bushels of rye, passes our comprehension. Three bushels of rye! Six bushels of corn! Why, they will scarce suffice to feed the mice that "most do congregate" in the granaries of such thriftless farmers.

We are, of course, aware that all soils are not able to grow one hundred bushels of corn to the acre, and other crops in proportion. But they are very poor specimens of land that will not, with good tillage, yield more than the averages above stated. Indeed, so far is it, in most instances, from being the fault of the land, that I feel safe in asserting that, *on an exchange of farms*, the three-bushel farm would, in a majority of cases, bring the land whereon was raised the forty bushels of rye, *down to the average*, in about the same time that the forty-bushel farmer would require to raise his bad bargain *up to the average*.

In order to grow maximum crops economically, many things are necessary to be known, and many things to be done. I shall take up these requirements, and do to each what justice the limits of my time and your patience will permit.

In entering on a farm, the first things that a judicious farmer ought to ascertain are—the component parts of his soil and subsoil, and of the crops that he proposes to raise. These last may be learned from books; but the other items of knowledge must be obtained from an *analysis of the soil*; and it would be folly, as well as rank cowardice, to deny that the importance—nay, the very value in the smallest degree—of soil analysis is a matter now seriously questioned by some able men, as it is also ignorantly ridiculed by many simple ones.

That such knowledge is valuable and necessary, stands to reason. For plants, like men, to grow, to live, must feed; and this sustenance must come from the earth, or from the air, or

from both. What nourishment the air contributes, is very generally agreed upon; and the earth supplying the rest, it becomes a matter of no little interest and importance to ascertain the state of the larder. If chemistry, through an analysis of the soil, is not competent to this, we cannot otherwise learn it.

Again, soils oftentimes contain noxious ingredients, that impede the growth, or even affect the life of plants. These, when ascertained, may be neutralized and made harmless, or, as frequently happens, be rendered, in some other combinations, positively beneficial to vegetation.

The opposition of so many farmers to the application of chemistry—a science capable of doing them so much good and no harm—has ever been to me a matter of surprise. Let us now consider the objections.

The first objection raised against the value of soil analysis is, that in so great a quantity as is the soil, comparatively, it is impossible to discover atoms so small as are many of the constituents whose presence or absence would cause it to be productive or sterile, as the case might be. In other, and plainer words, because it appears improbable, it is called impossible.

This is a singular argument to use in this age of the world, when every day exhibits its miracle; and the fingers of CLIO, the Muse of History, ache with recording the triumphs of Science! When Jenner announced that VACCINATION was a preservative against small pox, the entire medical nose of Europe was upturned in derision. Wise men said it was puerile to expect so great a result from so inadequate and unphilosophical a cause. Pious men rolled up the whites of their eyes, and pronounced it sin to set up the teat of a peaceful cow as a protection from the scourge of God. Conservative men called it "A new doctrine;" and, with this unanswerable argument, set it away among humbugs. A woman—to the honor of the sex be it declared—(the Lady Mary Wortley Montague) thought *it could be tried;* and who, now, denies what the wise men, and the pious men, and the conservative men of the last century declared to be impossible?

You cannot, for instance, (say the opponents of Soil Analy-

sis,) find and properly estimate the lime where it exists, as is often the case, in the proportion of thirty pounds of lime to two million pounds of soil on an acre. This statement of the case would appear more startling to me, who am more of an annalist than an analyser, were the former feats of science unknown to me. But when I know that the eyes of science have seen a star, so distant from our globe that its light, jogging along at the gentle pace of two hundred thousand miles in a second, consumes more than three thousand years in coming from home, hither;—when I know how far sighted she is, I am prepared to believe that she may be gifted with a nicety of touch, to finger, weigh and appreciate any atom, however small. When science can read the decrees of God, before they are promulgated, (as when foretelling eclipses and the approach of the erratic comet,) it is not overtasking credulity to declare that she can discover the component parts of a piece of dirt, taken in the hand to be examined at leisure.

But we are told, with an air of ill-concealed triumph, that men eminent for their scientific acquirements have pronounced the analysis of soil, in the present state of chemical science, to be of little or no practical value to the farmer. Well, men sometimes ascend the hill of science to such a height that they do not see objects palpable to others who stand below the mist-clouds that always envelop its summit. Thus Dr. Dionysius Lardner had proved to his own private satisfaction and that of his school, the impossibility of navigating the Atlantic with steam, when he was roused from his reverie by the signal guns of the "Sirius," as, unimpeded by the conclusions of the philosopher, she sailed into the bay of New York.

Then, again, scientific men of equal eminence have declared it to be an invaluable and an indispensable aid to the farmer; and "who shall decide when doctors disagree?" When men of high scientific attainments and unimpeachable character assure us that an analysis of our soil, *sufficiently accurate for all practical purposes, can be made, and is made,* we are warranted in overlooking the denials of many others. Indeed, it appears to me, from a glance at the array of authorities on either side, that

the opponents of soil analysis are chiefly men of the closet, while its friends are not only men of equal standing as chemists, but withal, practical agriculturists.

For my single self I am not ashamed to believe with such men as Liebig, Boussingault, Johnston and others in Europe, and with Charles T. Jackson, Norton, Mapes, Enderlin, Porter, Horsford, and many more in our own land.

The second objection urged against the value of an analysis of your soil is, that the quality of the soil on different parts of the same farm, and often of the same field, greatly varies.

This, at first sight, seems plausible; but we know that the chief variation is in the proportionate quantities of sand, clay, &c., and it is not with these that the analyst has chiefly to do. Allowing alumina (clay) and silex (sand) to constitute ninety per cent. of any soil, in any proportion, it is rather with the remaining ten per cent. that the chemist deals. And the soil of a farm that has been in the same hands for a course of years—every field subjected, as is usual, to the same treatment in rotation—will be found to be very similar, one field to another, in all respects other than a predominance of clay, or sand, or the like.

The "Scioto Valley lands" are often summoned as witnesses against the value of analysis. These soils are extremely fertile, and are apparently inexhaustible, having yielded immense crops of corn for twenty years in succession, yet when analyzed are found to be very similar in their constituents to comparatively sterile soils in Massachusetts—the chief difference being the greater pulverulence of the Scioto soil, which is like to ashes for fineness of its particles.

Two neighbors, farmers, agreed to carry through the winter, as an experiment, a dozen head of cattle, each on a given quantity of hay of similar quality. The one cut his hay fine and fed out to his cattle regularly as their wants required. These cattle thrived, and spring found them sleek and hearty. Farmer two turned out his herd to supply themselves, as best they could, from a well settled old hay-stack. The hungry beasts gnawed at the stack steadily,

> "They fell upon whate'er was offered—like
> A priest, a shark, an alderman, a pike,"

at times getting their fill, and at times gaining new appetite from their exertions. These, also, survived the winter, but they were gaunt, hide-bound and wretched.

Farmer two, of course, found fault with the hay, but we opine that the difference lay in the mode of feeding. And so we say of Scioto Valley lands. The soil is pulverulent—the food is chopped up—and always ready in the best state for the demands of the crop: while in Massachusetts the tender rootlet is forced to contend for its food; now with a rock, and now with a little-less-hard-hearted lump of soil, that gives grudgingly, and only on compulsion.

We have now stated two, and these the most serious, of the objections taken to the value of soil analysis, and have given our "reasons for the faith that is in us" of its importance. To show its bearing upon farming operations would cumber my remarks and consume more time than any of us would willingly now spare. Let it suffice now to say that, its value conceded, it becomes the prime counsellor of the farmer in his plowing, and in his manuring; it tells whether or not, and in what way best to disturb the subsoil; whether its incorporation with the surface soil is desirable; what, if any, applications are needed to render innocuous, or even beneficial, deleterious substances that may exist in the soil. The constituents of the desired crop being ascertained, it enables us to decide what aliment will be required, and to discover whether or not the food is in the soil, and in sufficient quantities; and if not, to supply it.

Let us now hasten to the more mechanical, but none the less necessary, operations requisite to insure maximum crops. Among the first is plowing.

We must plow deeply and thoroughly. The value of a thorough plowing, which shall not only invert but pulverise the soil, (or leave it in the best position to be pulverised by the action of frosts, &c.,) is proved, if proof we need, by the superior fertility of the lands just alluded to, the Scioto Valley lands. The difference to the plant between land badly plowed, so that the earth is only broken into pieces, and one well pulverised, is as great as is the difference to you between funds lodged in a bank, payable

on demand, and money locked up in the court of chancery, subject to the chances of litigation, and awaiting a final decree.

The advantage of deep plowing (except in cases where the subsoil is gravelly or deleterious in its nature, and the like,) is acknowledged by almost all farmers. Yet how very few practice it! I am inclined to think that the average depth of plowing in New England will not exceed six inches; and I fear that many and many a plow has never smelled the soil four inches below the surface.

Our agricultural societies are not altogether blameless for this state of things. Not that they caused it, for it is the old "grandpa" doctrine; but by the regulations of their plowing matches they have not done what is in their power to encourage deep plowing. Nevertheless, we trace back to the institution of plowing matches, as a part of our agricultural exhibitions, the improvement that is evident in the general plowing throughout the country. Allowed, that the implements used are superior to those formerly employed; yet this, alone, will not account for the better quality of the plowing, for we all know that the best implements make poor work in unskilful hands. It is the emulation excited among the workmen by the premiums and by the presence of an appreciating crowd of observers, and the instruction attained by inspecting these best specimens of work, that has raised the standard of plowmanship among us.

As the object of thorough plowing is to enable the roots of plants to obtain the nourishment that is in the soil, so the object of deep plowing is to permit free passage to the roots in search of food, as well as to open up new stores. The roots of plants descend to a greater distance than one would readily credit. Let us take the flat turnip, one of the most superficial growers on the list of plants, yet its roots have been found to descend to a depth of more than five feet. In digging drains, the roots of the clover have appeared many feet below the surface. And when we remember that the *stomata*, the mouth of roots, whereby they feed, are at the extremities of the rootlets, we will acknowledge the imperative necessity of deep tillage. The bulk, also, of roots and rootlets attached to plants is not generally appreciated. Dig up carefully a common cabbage, place it upon a sieve and cause

a minute stream of water to trickle slowly down upon it. The earth will be gradually washed away without breaking any of the minute fibres; and oftentimes you may fill a peck measure with the mass of roots.

It is a good practice to turn up with a surface plow about one half inch, or rather more, of the subsoil, at every plowing. The roots feed below the surface, so that this inert soil brought to the top will do no injury, while it is soon rendered fertile by the operation of the air and the effect of the manure, and its place beneath is more than supplied by the buried loam, with which it has been made to exchange locations. The sub-soil plow, following in the same furrow, disintegrates the compact earth below to a further depth of from six to eighteen inches, and without subverting it, renders it permeable to air and water, and penetrable to the pioneer roots of plants. The double plow, or Michigan plow, is an implement to be recommended for most farms. It is simply, (or rather, compoundly,) one plow having two complete plows on the same beam, in tandem style. The first and smaller plow cuts from four to eight inches deep, throwing into a preceding furrow the sod or surface soil, while the hinder and larger plow, cutting down as many inches more, throws the crumbled subsoil upon it, leaving the field with all the level appearance of having been harrowed.

Farmers were formerly afraid to plow deeply, lest their manures should leach through; and for aught they know, nourish the crops of their antipodes! But the cleaning of one barn yard ought sufficiently to convince the most sceptical, that even liquid manures do not leach far! When we scrape the bottom of the yard, we do not find it discolored to any great depth.

Jethro Tull to the contrary notwithstanding, we do not believe that maximum crops can be produced by the simple disintegration of the soil, with planting. We advise manure, applied with a true *liberal economy;* and not spread upon the field, hours before it is to be plowed in, exposed to the thievishness of the sun and wind.

It may be unpopular doctrine we preach, but we are not in favor of top-dressing lands with barn-yard manure, for the rea-

sons—evident and potent to us—that fully one-half of the manurial value of such an application escapes into the atmosphere; and that the chief benefit derived from its application could be attained by a less expensive *mulch*. Mr. Teschmaker, of Medford, Mass.,—one of the most scientific and most successful cultivators in America, and one of the most careful of men in expressing an opinion—estimated the loss of fertilizing value by top-dressing, at nine-tenths of the sum applied. A mulch—the shading and protection of land by a covering of straw or leaves, or the like—is undoubtedly, of itself, an excellent application; but to mulch with manure, at a loss by escape of fertilizing gases of even one-half of its value, is extravagance. For a top-dressing, use, rather, guano, well composted; bone dust, *ground*, not crushed; the improved superphosphate of lime, or like applications.

A mistake common to nine out of ten of farmers is to plant from one-third to one-half more land than they can well handle and properly manure. It is a fact, proved by the dearly purchased experience of thousands, that one acre, thoroughly tilled and liberally manured, will net more than three acres shallowly plowed, and sparingly dunged; just as one hale, hearty man will do more work than a trio of gaunt, half-starved spectres, and eat less. Indeed, there is no cormorant so greedy—no daughter of the horse-leech so insatiable, as land that has been allowed to become hungry; and small doses of manure, like the glutton's ante-prandial "snack," seem to serve only as a whet to the appetite.

A priest is said to have been called upon by his parishioners, in a bad season, to pray over their fields, that a blessing might descend on them. He accordingly prayed over field after field, until he approached one that was poverty-stricken and unpromising in the extreme. "Ah, my friend," said he at length, "there is no use of praying here; *this field needs manure.*" That priest was more of a religious philosopher than is at first apparent through the veil of his waggery. God's blessing is not apt to descend upon the sluggard, who folds his hands and whines out a petition for aid; but rather upon him who uses all proper

exertion to procure the blessing for which he prays. Thus the ancients represent a wagoner, whose vehicle had become fixed in the mire, as calling upon Hercules for aid, without at all exerting himself to extricate the wagon; to whom the god is made to answer, "Put first thine own shoulder to the wheel, and then call on Hercules."

In the preparation and preservation of manures, as in their application, the majority of farmers have much to learn; or, rather, I am confident that in this, as in many other of the operations of farming, they do not *do* as well as they *know*. But great improvements have been made within the last twenty years, over the old practice. Few farmers are now to be found who conduct all the rain water that falls upon their barn roofs, *into their barn-yards*, with the impression that the more of a mush they make, the more manure-y is the manure; though I have found this practice still extant. Fewer still can be found who drain their yards to get rid of the filthy water; while they scrupulously preserve the solids—being principally straw, corn-stalks and loam, rain-washed and sun-dried a score of times—as the substantial and only valuable part of the manure. Nevertheless, there is yet much unnecesary loss. We see too many heaps, thrown out of stable windows, exposed to the tender mercies of the sun and storm; too many unprotected piles, passing the winter in the midst of the field they are designed to enrich in the spring; too much lying *spread*, days before it is to be plowed in. Then, again, there is many a ton of water, of undecomposed straw or corn-butts, and unmixed loam hauled, at no little expense, out of some barn-yards, annually; as there are also cords of effete, fire-fanged, and used-up mould, carted out of others.

The advantages of pumping the drainage upon the solids are evident; this liquid contains nine-tenths of the fertilizing value of the deposit; the air also "follows in the footsteps of its illustrious predecessor"—the water, as it percolates through the mass, encouraging decomposition, insomuch that, after several drenchings, the manure will be found to be sufficiently shortened for immediate use; thus dispensing with the tiresome and expen-

sive job of forking it over. (And "forking over" is generally inconvenient and at all times unpleasant, as we all know.)

Our lands may be well plowed and well manured, nor yet yield maximum crops:

> "The sire of gods and men, with hard decrees,
> Forbids our plenty to be bought with ease;
> And wills that mortal men, inured to toil,
> Should exercise, with pains, the grudging soil."

Himself, we are further told by the poet, "invented first the shining share, and whetted human industry by care." Jupiter, therefore, we may thank for the invention of weeds; and, as he has appeared determined to make the farmers bestir themselves,

> "Nor suffered sloth to rust his active rein,"

he could not have hit upon a better exciting cause.

The seeds of the weed have, in every way, the advantage of the plant. They are usually first in possession, and consequently claim "nine points of the law." They are either squatters —the descendants of old settlers, and dropped there by chance— or they are carefully carted on to the ground by the unsuspecting farmer, snugly hidden amid stores of provision, in the manure. The weed is at home at once, anywhere; and, from earliest infancy, prepared to push his way in the world. He has often, in this respect, and by his unfailing success, (until cut down by the hand of destruction,) as contrasted with the plant, appeared to me like a son of poverty among men, compared with one of fortune's children—the heir of wealth. The hardy, half-clad little scapegrace cuts his wisdom teeth early; he knows he must fight his way through the world, and he prepares accordingly; in the end he has managed to fill his stomach, cover his back and put money in his purse, all at the expense of his more tenderly-reared cousin. Our wealthiest merchants, most distinguished lawyers, most eminent statesmen, most profound scholars, most successful physicians, most distinguished divines, most ingenious mechanics, and most thriving farmers, were, almost to a man, the children of poverty—the young weeds, from which we have already too far digressed!

Farmers do not, usually, deal wisely in their war with the

weeds. The general who should allow his enemies time and opportunity to increase their force, before he compelled them to battle, would scarcely be accounted sane. And that can scarcely be prudence in farmers, which is folly in others. It is not impossible, or even very difficult, to kill the seeds of weeds existing in the manure, by inducing fermentation enough to destroy their germinating power, without injury to the manure. Many good farmers keep one year's supply always on hand. Manure carefully preserved through two seasons is not only well rotted, and in a state to be at once serviceable to the plant, but it is usually, and for obvious reasons, free from seeds in a state of vitality; though the same effect can be produced, by a little care, in less time.

If, however, the weed finds a lodgment in your soil, do not wait until it is firmly rooted, and has acquired size and strength; for a firm foothold once gained, it is difficult entirely to eradicate the pest. It may be turned under, or turned over by the plow or cultivator; but, oftentimes, (like the Titans of old,) it gains new strength from the overthrow, and commences the combat more fiercely than before. It may be decapitated by the hand-hoe; but (worse than the fabled Hydra, for whose every lost head two at once appeared) the weed sometimes throws up three and four from every stump. As soon as the rows of plants can be seen, it is well to set your cultivator in motion; the sun speedily destroys the young root thus exposed to its scorching rays; or, rudely torn while young and tender, they have not the strength to send out new rootlets. Some sagacious farmers sow radishes with some drill crops—such as carrots and the like. The radish, being quick in its growth, soon marks the rows, and the cultivator may, with profit, be at once put in motion.

Let the weed and the plant begin life together, and the weed will manage to appropriate at least two-thirds the food in the soil; and (unless the crop be from seed of Jonah's gourd) will grow two feet to every twelve inches attained by the plant. One would suppose that, absorbing as they do such a quantity of fertilizing matter, weeds (rotted) would make the very best manure; but they are a good deal of the pea-brush order, and,

like some lazy men we wot of, their carcases will not pay for the food they eat.

Drainage is necessary on very many farms—on more than is believed by the owners—to insure maximum crops. No justice can be done to this subject in the few moments I have now at my disposal; let me urge it, however, upon all farmers, to study this subject; it is well worthy of their earnest attention. In water-soaked soils the manure does not decompose, and yield up its fertilizing properties; the air cannot penetrate, and the half-drowned roots sustain a half-grown crop.

One thing more I may profitably say on this subject. It is a very common mistake to dig a ditch through the lowest part of the field, where the water shows itself above the surface. This is poor economy, for "an ounce of prevention is worth a pound of cure;" and this method neither prevents nor cures, while a ditch properly located does both. Tap the water before its level is apparent on your land.

In order to make farming pay, as it should pay, it is further necessary that we should raise maximum crops *in the most economical manner*. Among other judicious expenditures, I recommend the purchase and the use of improved agricultural implements. They are, in the best sense, *labor-saving;* for they not only perform more work, with less labor, than the discarded tools of our dear apotheosised forefathers, but better work.

It is pleasing to remark how generally the improved implements are adopted by New England farmers, as soon as their merits are well ascertained. The intelligent farmers whom I have the honor to address, need no introduction to the best iron plows, made by B. Martin, Ruggles, Nourse & Mason, Prouty & Co., Robinson, and others; to the improved hay-cutters, that save time and labor to your stock; (for it is as much and as genuine labor for an ox or a horse to bite up hay into small pieces, as it would be for a man to cut it up with a knife dull as a tooth.) Nor need I waste breath in recommending to you the cultivator, by the aid of which one man does the work of many; nor the hay and manure forks of Partridge and others. These and other implements are in common use.

But, gentlemen, the farmers themselves have one improvement to make, in this connection—an improvement loudly called for and already too long delayed. They must tax their ingenuity to improve upon their present style of taking care (or rather no care) of their implements. Plows are pitched up against the wall, until again wanted; scythes hang in the apple-tree; hoes and rakes are every where, except in the tool house; ox chains lie rusting on the grass; yokes lean up against the bar-posts; and carts and wagons "stand out doors," in sunshine and in rain, year in and year out, serving one only good purpose, to give transient shelter to poultry upon occasions of a sudden shower or a too tropical temperature. If all the hours that are wasted in one year, on farms in this State, in hunting for mislaid tools, were coined into dollars, and added to the amount of unnecessary loss on implements from bad usage and exposure, it would more than pay the annual expenses of the State government. Take care, then, to get good implements, and take care to keep them good.

The quality of the live stock upon our farms will do much to decide for the owner whether or not his farming will pay. On many farms, the whole produce of the farm is converted into beef, mutton, pork, horse flesh—*live* horse flesh—or milk. On all farms, more or less of the annual crop is consumed by domestic animals. It becomes a matter of no little moment, then, that we should select such specimens of each variety of stock as will best pay for their keeping.

None here are so ignorant or so unobservant as not to know that there is a vast difference in the value of animals in this respect; that one milch cow, for instance, from the same amount of care and food, will yield twice as much milk, or butter, or cheese, as another; that one porker will lay on treble the fat, for the meal given, that his fellow grunter will accumulate. And no one can fail to see how important it is that we should make a wise selection of domestic animals. But, gentlemen, if we stood now in the palace of Truth, we should all be obliged to acknowledge that too many farmers—and these, too, the very sturdiest sticklers for *practical* farming—act as if they thought "a cow is a cow, and a pig is a pig." They purchase a cow for twenty

dollars, who would be dear as a gift; and they cannot "afford to pay a fancy price" for an animal that would be cheap at twice the charge. So also with swine. As "a pig is a pig," they purchase the one for which the smallest price is asked, though in six months he will manage to eat himself up twice over, in preference to a more profitable pig, of an improved breed, at a little larger first cost.

Do not understand me, gentlemen, to favor the paying of a large price, when as good an animal can be had for a less. There is such a thing, (as the experience of most of us will attest,) as "paying too much for the whistle;" though it be an exceedingly good whistle. Every man must decide for himself the whistle's value to him. I desire but to impress upon you that one wind instrument of the kind is cheap at a dollar, when another is dear at a dime.

There are many men engaged in the systematic breeding of stock to supply the country, who will need no advice from me; but to the bulk of the farming community I wish to say that it is in their power to serve the country and their days, by breeding stock *up* and not *down*—by improving each generation. This may be done by all, whatever the materials with which they commence, by constant selection of the best for breeding purposes. Let not the butcher carry off, yearly, your finest heifer calves for slaughter, while you retain for rearing the poorest. Though you thereby realize a small instant profit, you are slowly, but surely, strangling to death the goose that lays the golden egg. Do not sell your most promising little pigs, and rear runts, or your stock will deteriorate rapidly, until the tenants of your sty will be all head, legs and tail. Select, always, the best of your heifer calves and sow pigs for breeding; and of males, prefer a full blooded animal, whether he be Devon, Durham or Jersey; or whether his swineship be called Suffolk, or Essex, or Middlesex. The value of blood is, first, that it is *already improved*, and thus you commence high up on the ladder; and secondly, these animals will transmit their qualities—whether they be milk-making or fat-making—with greater certainty than do the mixed-up races which we term native. And as males communicate their organizations with the most obvious effect, of the two parents, it

is of more consequence that the sire should be full blood than the dam. We have, already, many breeds of swine, of considerable local reputation, that were manufactured to order, as it were, and as can easily be done by careful breeders. So, also, there are a few home-made breeds of cattle; instance the Cream-Pot breed, formed by our friend Samuel Jaques, of the Ten Hills Farm, near Boston—another of the benefactors of American Agriculture. But how soon, in careless hands, will the best breed deteriorate!

Averages usually cause to the wisest of us a start of surprise; few are prepared for their statements of facts. In Massachusetts or Connecticut a cow's average annual yield of milk will not exceed fourteen hundred and sixty quarts, or four quarts a day. Now, not for the purpose of making boast, but simply for illustration's sake, let me say that my own stable of thirteen cows, daily fed, groomed, and most of them milked by myself, yielded 41,670 quarts of milk in 365 days—an average of eight and five-sixth quarts per day throughout the year for each cow. By reference to my milk books of another season, I find that on the 30th of April, on dry feed, seventeen cows, (three of whom were dry, and the others more or less gone with calf—for to supply a steady yield of milk daily, throughout the year, we had one cow to "come in" every three weeks,) were giving *one hundred and sixty-five quarts of strained milk.* On the first of June, the average of the whole stable, on green food, was *thirteen and a half quarts.* Larger yields have been obtained by others. If I have any personal feelings in making these references, it is that my remarks may thereby have with you the greater weight.

The secret of successful milk raising consists in good cows, good care, good keep, quiet, and kindness; which Mr. Yellowplush would call "the five K's." The necessity of the three first is universally conceded; and I will pledge myself for the importance of the two last.

So fearful are our farmers of any admissions of the value of science, that the structure and diseases of animals are not as well known as wisdom and true economy would advise. Thousands of animals are annually lost in the country through ignorance. The absence of knowledge in this branch of science is always la-

mentable, sometimes ludicrous. The vein that meanders over the belly of a cow, and disappears near her udder, is styled, for short, *the milk vein*; because science has conferred upon it a very long and very learned, but very explanatory name—the sub-cutaneous abdominal vein; (*sub-cutaneous*, because it is situated immediately under the skin, and *abdominal*, as traversing the abdomen.) Now mark how a want of precision in nomenclature may mislead. At least one-half of our farmers, because of this name, consider the vein to be filled with milk, and to be connected with the udder, which it is supposed to supply; whereas the vein has in fact nothing to do with the udder, more than other veins; and shows the yield of milk only as it indicates the quantity of all the secretions of the animal, milk included.

If one may believe what he hears from all quarters, there is a disease that affects all the neat cattle in the country; but which I have hopes of curing in this State. It is called the *Tail-Ail* or *Tail-Sickness*, and sometimes, *Worm-in-the-Tail*. It is supposed to be indicated by a softening and swelling of the extremity of the bony structure of the tail, and by a curl in the hairs of its brush. This softening is said to crawl up the tail, to proceed along the vertebræ, until it reaches the head, when the animal must die. Now, farmers, I have watched a great many animals affected with this mysterious complaint for many years, and never knew one the worse for it, for a moment, nor ever one to die of it. Moreover, veterinary surgeons can prove to you that, from the structure of the animal, it is impossible that any such disease could travel from the tail to the body, as is assumed by tail-ail champions. So I beg that no more cattle may be decaudizated on this account.

An essay on the treatment of the diseases of animals is an interpolation in the "order of exercises" that I had prescribed for myself; but I cannot refrain from raising my voice against the cruelties practiced upon uncomplaining animals by ignorant—and all the more presuming for being ignorant—quacks, or by farmers who do not pretend to understand the treatment of diseases, and only do as they see others do. Let me instance, now, but one disease—the *Lampas*. Its symptoms are well known; the bars of the mouth swell, and become even with the level of the

teeth, and at times extend beyond them. The horse eats with difficulty, because of the pain. Young horses are most subject to it. The horrible *cure* for this—a remedy that a barbarian must have originated, and which is a disgrace to a Christian land—is to burn down the swelled roof of the mouth with a red-hot searing iron! As well might your family physician prescribe a burning iron for the reduction of a boil that may break out on your boy's leg, or that blossoms, as they sometimes will, on one's own nose! Let us forego no opportunity of putting down this heathenish and uselessly cruel custom. The disease proceeds from inflammation of the gums, usually, or from fever in the system; and can, in all cases, be cured by a few simple bran-mashes, followed, if found necessary, by a gentle purgative.

But, to return to the point whence our love for domestic animals, and our interest in all that conduces to their comfort and well-doing, has induced us to stray—there are yet other important and indispensable prerequisites to profitable farming, that with the best will in the world, we shall not have the time to touch. Such are the procurement of the best and most profitable kinds of seeds; the employment of the best hired hands, and the wise and economical application of their labor; the selection of the best varieties of fruit trees, together with a knowledge of their planting and subsequent treatment; with many minor matters, which are, in auctioneer parlance, "too tedious to mention."

From what has been already stated, it will be seen that the thorough farmer should have a knowledge of plants, soils and minerals; he ought also to be at least a passable mechanic, for the mending or making of his own tools; he should, for his cattle's and his conscience's sake, be a good physician; and now, to crown all, he should, for his purse's plentitude, be a good merchant. In no one essential are farmers, generally, so wanting as in this last mentioned. Many grow crops enough to pay their way, at least, or raise stock good enough; but they seldom pocket the best market prices. Either they are forced by want of capital to sell at the wrong time, or, by the interference of middle-men or forestallers, they sell to the wrong person, or else, for lack of information, they sell at the wrong price. But certain it

is that the farmers do not profit, as they might, by their own productions.

Farming may be made profitable, Mr. President and gentlemen; but if my view of the subject is correct, only by those who farm well. Let me ask your continued attention, then, while I state how, in the absence of agricultural schools, good farmers may be multiplied.

Prominent among the means of instruction are the Show and reports of the County or State Society. Here are to be found, for comparison and competition, what the best farmers of the district consider their best stock; here contend for precedence the most thorough plowmen, giving specimens of their work, by which all may judge of their claims, and many may learn for the first time what is pronounced to be good plowing; here congregate the inquiring minds, and the men of experience, at this farmer's exchange; some one, supposed to possess ideas worth the hearing, has been selected to address the assembled multitude; the Transactions of the Society, when published, give forth the doings and the opinions of the most successful farmers, whereby others may profit. All these things go to form a school whereat those who crave knowledge of their craft may obtain it.

But it too often happens that preparation for the Annual Exhibition is put off until within a few weeks, and frequently a few days of the Show. The full value of the Fair will not be realized by exhibitors and competitors, nor will the greatest benefits accrue to spectators and students, until the Show, in the stead of being a scramble for premiums on chance-grown crops and haply-excellent animals, shall be an exposition, in the case of every exhibitor, of the results of a twelve-months' study, care and diligence. To effect this so desirable end no instrumentality can excel the Farmer's Club. And of these there should be one in every town, every village, every neighborhood, alive and at work throughout the year, drilling and instructing its members against the day of annual parade.

The value of a Club is not generally appreciated, or no town would long consent to be deprived of its influence. In the first place, at these conversational meetings, held once a week, or

twice a month, members become accustomed to speak in public, and to express their views with ease. Most men, without practice, are frightened at the sound of their own voices. When they rise upon their feet to address an audience the thoughts that filled their minds desert them. Almost every speaker will confess to a like experience. But, by degrees, one acquires a self-confidence which enables him to feel as much at home on the floor and before an audience as when seated in his own chimney-corner, detailing the events of the day to the good wife and children.

In the next place, these occasional meetings strengthen neighborly feelings. Farmers live an entirely too secluded life; they visit little among each other, and seldom stray far from home, except to the store for groceries, or to the town-house to vote. Consequently, they lose much of that enjoyment which society affords, and unsocial (not misanthropic) habits grow upon them. To go out to spend an evening with a neighbor is a matter for a month's discussion. News travels slowly through an agricultural district: so does information. Farmers get behind the times. Now for all these evils the Club offers a radical cure.

Thirdly, no American farmer can attend the meeting of a Club of his fellows without receiving instruction. There is no one so well posted up in all that pertains to his profession, that his neighbors cannot enlighten him on some points by the narration of their successes or their failures; for a failure conveys as good a lesson as the most complete success. Failures warn us from following example, as success incites us to imitation. Then, again, one farmer may be an oracle on stock raising, another excels in tillage-crops, a third—(perhaps this third man may be a mechanic or a clergymen, who has joined the Club for the benefit of his garden-patch or glebe)—he is wise in horticultural lore. These three Yankees cannot long occupy the same room without a barter of their intellectual commodities. The parson has swapped away a remedy against peach-borers for an idea about raising carrots; the stock-breeder has given his friends a cure for garget or taught them how to pop-out "warbles," in return for

which he carries home a new wrinkle about orchard-management, or the most economical way of draining his low lands, &c., &c.

Fourthly, the Club induces men to study and to observe with nicety, that they may have something to add to the common fund, in return for what they have received therefrom. This is human nature, that is, the human nature of honorable men. We are not more willing that our comrades should teach us without return than that they should feed or clothe us without pay. Then our pride spurs us on to show that we, too, have a contribution for the common stock, and if it does not happen to be on hand, we bestir ourselves to acquire it.

Fifthly, few enterprising men thus brought together once a week, or more or less often, to discuss a subject of common interest, will long be contented with the narration of what they have done; they will cast about for new fields of exploration or seek to enlarge the bounds of the old. Thus experiments will be suggested and agreed upon for a coming year, or a county Fair will be proposed, or the foundations of other good works be firmly laid.

Sixthly, farmers, seeing the results of combined effort, will be gradually led to value it, and to employ it in all matters interesting to them as a class. One, and the only reason why the farmers of America are without power, is because they have never learned to act in concert. Touch the tariff, and the whole manufacturing interest is in a ferment; meddle with the slavery question, and North and South buzz like bees and hornets; impose upon artisans, and every city swarms with remonstrating mechanics. But the farmers, though numerous, are divided and beaten in detail.

Seventhly, frequent meetings of farmers will have a tendency to wear away prejudices, which now, as a class, they rather hug. He must be an unusually obstinate individual who long resists evidence addressed to his ears and eyes, and arguments that appeal to his pocket.

Last to be mentioned but not least to be preferred among the means of improvement, is the reading of agricultural books and journals. To little purpose have I talked or have you listened,

my fellow farmers, if you are yet unconvinced that agriculture is not only an art, to be acquired by practice and observation, but as well a science, to be mastered only by study and thought.—Books and papers are the silent instructors for the fireside or the neighborly gathering. They contain the rich treasures of others' experience, collected in small compass from many and distant places—the tale of long years of toil, told on a single page. The farmer who undervalues this cheap and easy mode of instruction is no Solomon, and he who overlooks and neglects it is far from being a sage. Show me the men who sweep off your premiums, and nine out of ten of them, I venture to assert, are the reading and thinking farmers: Show me the farmer whose purse has grown weighty with coin, whose pocket-book is plethoric, to whom the rustling of bank notes is familiar music, and ten to one he is a reader and a thinker.

As is known to you all, the speaker is the editor of an agricultural journal; but if as an editor he must say that the farmers do not exert themselves as they ought to do, by procuring subscribers and by communicating information, to sustain the agricultural press, as a farmer he can add with truth, that the poorest paper that is now in circulation is worth to any farmer ten times its subscription price. One single article may be, and often times is, worth to a reader ten dollars; that is, he shall net this amount in a year by adopting a recommendation that he reads, yet we shall hear the same man grumbling because every page is not filled with matter suited to his wishes. If farmers knew their best interests, they would give their hearty support to, not one, only, but to a half dozen agricultural papers, and look upon it as their wisest investment.

Gentlemen, I have laid before you my own views of an interesting subject; think over what has been said, and put upon it what value you deem it to deserve. Pin your faith to no man's skirts, to grandfather's nor to grandson's; "prove all things; hold fast that which is good."

MR. GLIDDEN'S REMARKS.

Col. Ezra J. Glidden of Unity, being called on, remarked that he had no cattle on exhibition, because he had no *good* ones to exhibit. He had gone into Devon stock, and he must say that he had lost in the weight of his cattle. The color was excellent, and that was enough to introduce *that* stock throughout the State —it must be *that*, certainly not their qualities for fattening, working or milking—those qualities are not there. Other people might favor them, but when he found an Ayreshire, a Durham, or a native calf, weighing twenty pounds the quarter, while the Devon weighed but fifteen pounds per quarter, he certainly should favor the former breed of cattle, whether fashionable or not.

It was late, but he would make a remark upon the subject of sheep growing. He had grown sheep for twenty-two years, and never lost one per cent. of them. He used neither sulphur, tar nor grease upon them, and had no difficulty in rearing that kind of stock. Tend your sheep, see to their pens, feed them well, keep them warm, wash them when it is warm and pleasant, and you will have no difficulty with your flock. Don't crowd your pens or your pasturage. Don't put two hundred sheep into forty acres of pasture, if you do your sheep will have the worm in the head next winter, if they don't in the summer. Why, I have a neighbor whose sheep always have the worm in the head. He don't feed them enough, so that the butchers will not have them, and the worms are sure to take them, for they are too poor to throw the worms out of their heads if they get into them.

Owing to the lateness of the hour Mr. Glidden declined to speak at any length, and the meeting adjourned to the next evening.

On the succeeding evening, the Society re-assembled according to adjournment, Levi Bartlett, Esq., Vice President from Merrimack County, being in the chair.

The committee on nominations reported, and the Society unanimously elected, the following board of officers:

President,

P. P. WOODBURY, Bedford.

Vice Presidents,

JOSEPH L. CILLEY, Exeter;
HIRAM A. DANIELS, Milford;
THOMAS MERRILL, Enfield;
THOMAS LITTLE, Boscawen;
MILAN HARRIS, Nelson;
WILLIAM R. KIMBALL, Cornish;
DANA WOODMAN, New Hampton;
JOEL EASTMAN, Conway;
JEREMIAH ROBERTS, Farmington;
MORRIS CLARK, Whitefield.

Executive Committee,

HENRY F. FRENCH, Exeter;
EZRA J. GLIDDEN, Unity;
WILLIAM TENNEY, Hanover;
BROOKS SHATTUCK, Bedford;
JOSEPH ROBINSON, Concord.

Secretary,

JAMES O. ADAMS, Manchester.

Treasurer,

FREDERICK SMYTH, Manchester.

REMARKS OF H. F. FRENCH, ESQ.

Henry F. French, Esq., of Exeter, chairman of the Executive Committee, was called out, and occupied the platform for nearly an hour. Supposing Mr. F. would furnish a copy of his remarks for the Transactions, no full report was made at the time. The following abstract embraces the principal topics alluded to in his speech:

He said that all acknowledged that the difference between good and bad farmers was, that one knew *how*, and the other did *not* know how. In other words, one was better educated in agricultural knowledge than the other. What we want in agriculture is perfection, as near as may be. We want what is new and valuable. We want to make progress. That is, what we come here for is, to see better ways of carrying on our business, whatever it may be.

Some one has divided people into two classes, those who are *wise* and those who are *otherwise*. There are some men who are ever in the latter class. Their shells are so hard that you cannot *bore* through them. It is a hopeless case. Such men are not here. They are at home. They cannot learn anything here.

He then spoke of agricultural implements, and proceeded to describe the mowing machine. He thought that in three years our large farmers would use the mowing machines extensively. Upon the subject of soils, he remarked that there was much humbug. The chemist can tell the constituent parts of the soil and its productions. The elements in soil and vegetables of the same kind, are the same in every country. But the difficulty is in getting men to analyze correctly; not that they cannot analyze a particular soil or vegetable, but there was a difficulty in the matter. The experiment must be so nice as not to be practicable in the present state of agricultural chemistry—so as to be of great practical utility. Chemists disagree in this matter. Some hold that chemical analysis is to be implicitly depended upon.

He then spoke upon *super-phosphate;* thought it an excellent manure, but had doubts as to whether it was cheap enough. Two and a half cents per pound was a high price, and it was a question whether the farmer would pay such prices. Let us experiment upon the subject, and let people know the result.

He then spoke of the advantage of agricultural societies and agricultural newspapers; recommended their support, and the introduction of agricultural works into our schools; recommended the appropriation of money by the Legislature in aid of the

objects of the Society. He then proceeded to speak of the discouragements under which the officers of the Society had labored, and closed by an appeal to the farmers and mechanics to use their influence in favor of securing pecuniary aid to the Society.

MR. CHASE'S REMARKS.

F. R. Chase, Esq., of Conway, was called up, and made a very humorous speech. He said that he was somewhat in the situation of the girl who said she was "sort of courted and sort of not." He was "sort of" a farmer and then again "sort of not;" but rather more "sort of" than "sort of not." He had a few acres of land and some live stock, a part of which he acknowledged to be the gift of that prince of reporters and good fellows, John C. Moore, Esq.

Up in Pigwacket, they had made a discovery in farming—that nothing was of more value to the farmer than manure; that a load of manure was worth more than a whole session of legislation. Let legislators take care of themselves, and the farmers, with united effort, can take care of themselves.

JOHN R. FRENCH'S REMARKS.

John R. French, Esq., of Biddeford, Me., formerly of Plymouth, in this State, took the stand and made an enthusiastic speech, which we give in full:

Mr. President and Gentlemen:—I am sorry you insist upon my speaking, for I must confess to a little pride in the good reputation of the name I have inherited from my father; and I am quite sure that the reputation of the *Frenches*, for interesting and valuable speech-making at an agricultural gathering, is much safer where it has been placed by the French who has already

addressed you, than it will be when I shall have talked five or ten minutes. All of us, who rejoice in that name, are quite willing and anxious that you should take our esteemed Exeter *cousin* as the representative of the family, at all agricultural assemblings.

Gentlemen, though I have no fancy for this platform, yet I am very glad to be with you this evening. There is something connected with birth and early associations in this glorious little State of yours, that clings to all its children, wherever they may wander. An undying love for its mountains and its rivers and its men, living and dead. A love for *New Hampshire*, and an interest in all New Hampshire matters, that no stretch of time nor distance is able to weaken. Fortune has driven me from your borders. I mingle in the strife of life with another people. But my *home* is still here—I cannot make it otherwise. I read your newspapers, and feel all the interest of one of your number in all your movements for social and public improvement. And when you meet at this grand annual FESTIVAL OF YOUR FARMERS, I cannot stay away. The last year, our County Cattle Show occurred on the same day with your Fair, and I was not long in determining which to attend. On returning to Biddeford, I was met with one universal complaint. "What a man for an editor! away at the cattle show! You should have been here to have noticed and thus been able to tell the public about my premium steers." "And my cow." "And my horse." "And my plough." "And my apples and pears." And so on and so forth. I could only promise to do better another year. Well, another year has come round, and the fates would have it again that our county fair should come on the same days of this State gathering. Yesterday, as a dutiful editor of York county, I attended our fair at Alfred; but this morning I told my friends it was no use. If they were agoing to have their fairs on the same days with the New Hampshire Society, why, they could have them without my attendance. And, wishing them a pleasant day, I took the cars, and am glad to find myself tonight here with you—the tillers of the green vallies and the bright hill-sides of *our* State of New Hampshire. The coming

winter would indeed be a dreary one to me, down there by the sea-side, were not its sombre days to be gladdened with the joys that memory will garner from the sights and intercourse of these hours.

I wanted to come here to hear our friend from Exeter (who, as chairman of your Executive Committee, is doing so much for your Society,) talk about the culture of apple trees—for no man in the land talks upon that pleasant subject more intelligently and eloquently. And I wanted to hear our good-natured friend here before me, from New Ipswich, in his pleasant talk about that valuable animal upon whose resources we all rely so much in our toddling days—the patient and invaluable cow. And that rightly-named man from Rhode Island, farther down the hall, who always honors this annual gathering with his presence, and who goes into this enterprise of agricultural improvement with an enthusiasm that, while it is honorable to him, is of great service to the good cause—I was anxious to hear his words of spirit and good cheer. And the round, jolly face of "the gentleman from Unity," with whom that same *King* is this moment in confab—the man who knows more about the points and requisites of a yoke of working oxen than almost any other man in the State. Who doesn't feel that the absence of his good-natured face from these gatherings would take away a large share of its pleasures and its encouragement? And, Mr. President, in my own experience as a farmer, (and I doubt not in this matter mine has been the experience of many others,) I have found valuable aid from facts and ideas learned from your lips, at these farmer meetings, relating to that very important item of farm economy—manures and their composting.

And this is NEW HAMPSHIRE. New Hampshire! Limited in territory, and that even rocky and broken, and running up to the cold Canadian line. Yet rich in story and song! Bound up with your history, legends of bravery that Rome might have coveted in her proudest days! Your name, in the regard of the whole world, linked with the greatness and success your sons have achieved on every field of human action! Mingling with your soil the dust of dear kindred and friends! NEW HAMPSHIRE!

"Where'er I roam, whatever realms to see,
My heart untravell'd, fondly turns to thee."

The first words that reached my ears from this platform, as I entered the hall to-night, were these words of truth: "*Knowledge* is what our farmers need." It is the very truth, above all others, that needs impressing upon the agricultural mind, not only of this State, but of every State of this Union. In view of what is to be learned, and might be learned by every man, in regard to these great laws of vegetable and animal life, I do the farmers no injustice when I say they are *ignorant*. Were our manufacturers and merchants half as ignorant in matters pertaining to their business, how many successful merchants and manufacturers, think you, should we have? I know it is very fashionable with men who have "axes to grind," to talk a good deal about the "superior intelligence of the yeomanry." We hear this talk sometimes on the Fourth of July—frequently when elections are at hand. But I submit it to you, farmers, if the unwise custom has not very universally prevailed of sending the brighter lads of the family away to learn trades and to college, while the dunces have been kept at home for farmers. This business, whose successful prosecution demands the closest investigation, a keen eye to trace processes from their causes to their results, which opens the broadest fields of thought, and develops the most wonderful laws of creation, has been thought the appropriate field for the display of the skill of such as are inadequate for the other departments of human labor! And the mortifying, though very natural result is, our farmers are not the men who thoroughly understand and comprehend their business. Don't be offended, gentlemen! I don't mean you! You are the *exception*, who prove the truth of the general fact. I mean those farmers, and they compose the majority of the profession every where, who sneer at meetings of this kind, who hate an agricultural society or an agricultural paper, as a mad dog loathes one of your laughing mountain brooks—the men who, when they chance to go to mill horseback, balance the grist with a stone in the other end of the bag.

The allusion made by the gentleman from Conway to the sub-

soil plow, brought to my mind a bit of experience I once had with one of this large class of farmers of whom I am now speaking. Some half dozen years ago, a very kind friend gave me the opportunity of trying my hand and brains in the labor and care of a very excellent farm in one of those fruitful and beautiful valleys that abound in Grafton county. Though then destitute of all experience in agricultural labors, yet I knew enough to be aware of the importance of good tools; so I took along with me a sub-soil plow. It was the first seen in that locality. One day, with the sub-soil plow and a good pair of horses, I was at work in my field, when an old farmer of the neighborhood, as honest an old man as the earth bears up, favored me with his company. Taking his position where he could overlook all my operations, he allowed me to go round the piece a number of times before any other words than the customary salutation were exchanged. After quite a while, with a voice tremulous with disgust and anger, my old friend exclaimed, rather than asked—"French, what do you call that thing?" affixing a wicked adjective to his noun. With due modesty I told him the name and object of the plow. "Well, if ever you lay such a looking thing as that upon any land belonging to me, I'll prosecute you. *Sub-soil* plow! I tell you what it is, French, I don't get half the crops upon my intervals that my father or grandfather did; and they never used any but wooden plows, and I have come to the conclusion that there is something in these *iron* plows that pizens the land." And away went my friend, with his new idea, across lots, and actually stopped all plowing operations upon his farm, until he had succeeded with his broad-axe in hewing out a *wooden* plow, as much after the fashion of his grandfather's as he was able to remember, and with that completed his plowing for the season.

As you seem, gentlemen, to relish my story, I will venture to detain you with another little incident occurring in my experience with farming life. At that quiet half hour of twilight and rest, that the farmer has along in the days of June, after a steady day at hoeing, with the cows all milked, and the chores done up, as I was sitting by my door, one of the neighbors called, and

with the look and voice of one who has a weight of thought pressing upon him, intimated a wish to see me alone. He came to tell me that a lad living with him, (a clever boy belonging to the neighborhood,) he was fearful was troubled with *insanity;* and as the lad had lived in our family the winter before, he wished to know if I had noticed any indications of the fearful disease. After assuring him that I had noticed nothing of the kind, I asked wherein has the lad shown evidence of a diseased brain? "O, his mind is not on his business. He is all the time talking about the moon and stars." Themes for lunacy, truly! But knowing that the boy had for a few months been quite interested in the study of Astronomy, I concluded that I comprehended the case; and so explained the matter to my alarmed friend, and told him that I didn't doubt but that when the novelty of the new and interesting facts that were filling the boy's thoughts should have somewhat worn away, he would have less to say about these affairs, that were certainly somewhat distant from his work. The old gentleman's fears were not to be so easily removed; and shaking his head doubtfully, he went home, and I heard no more until the lad came himself, about a week later. "How is this, that you are here, dressed in your Sunday clothes, in the middle of the day, and in hoeing time?" "O, I've been turned off. This forenoon, I was talking with Louis about the Sun and Earth, as we were hoeing along together. I said the Earth went round the Sun; he said the Sun went round the Earth. The old gentleman overheard the talk, and seemed to be mad, and said I might leave; for as for his having such cursed nonsense talked in his field, he wouldn't. Any fool might look up and see that the Sun went round the Earth."

These, gentlemen, I need not tell you, are specimens of the intelligence and the feeling of a numerous class of farmers—men whose ignorance is only commensurate with their hatred of all attempts to increase knowledge. But the times and the farmers are changing. Other boys beside the dunces are being brought up to farming. And men of intelligence and education, men of thought and inquiry and observation, are learning that the cultivation of the earth is big enough business for all their powers.

It becomes the first duty of these men, who are aware of the importance and dignity of their calling, to aid in the circulation of agricultural knowledge among all engaged in agricultural labors. To increase the circulation of the agricultural press, and strengthen and multiply agricultural societies. But above all, in New Hampshire, Mr. President, as well as in every State, the farming interest needs these two things: a *Model Farm*, and an *Agricultural School*. Not charities from the State, but created and sustained by the farmers themselves. At some central and accessible point, we want a good farm, where, under the hand and eye of skilful, scientific and experienced men, shall be instituted and carefully noted thorough and scientific tests and experiments in all the routine of farm life. Such a Model Farm, properly conducted, would be of incalculable benefit to the farming interest, and not very remotely beneficial to all the interests of the State. And the other great want may be secured in connection with a farm—an Agricultural School—a robust school of science and practice. What the farmer lads are asking for, is knowledge. By lectures and experiment, they wish to be made acquainted with the philosophy of their business—the analyzing of soils, the composting and application of manures, the rearing of stock, the cultivation of orchards, the tillage of fields—these are the matters that the young farmers want to know more about, and all about. They want to exchange the hap-hazard fashion of their fathers for a certain, fixed, reasonable, scientific mode of procedure. Why should not a young man sit down to the study of agriculture with as much confidence as he sits down to the study of astronomy or chemistry? The growth of plants, the development of flowers, the maturing of fruits and grain—how full of wonder and beauty; and yet how little close, continued, learned attention has been here bestowed. Men every where else have followed God's wonderful laws, as developed in the glorious creations of his Almighty will, through all their beautiful relations. Science has traced the hand of the Almighty through the heavens, from fact to fact, until she is able to give us the avoirdupois of worlds, and tell of the return of the comet, whose wandering orbit stretches through centuries, with as absolute cer-

tainty as we talk of the events of yesterday. But how little attention has the student bestowed upon the laws of vegetable life. What more beautiful than the growth of a field of corn, through all its stages, from the few handsful of dry grain cast into the earth, up to the time that it puts on its golden vestments for the harvest holidays, gracefully bending to the earth with its weight of food for man and beast. And the cultivation of fruit—but it is not for me, Mr. President, while the gentleman who sits at your right is upon the platform, to attempt a picture of horticultural experience—telling of the pleasure and health to be found in the training of a thrifty, green-barked young orchard, from the careful setting of the bud, to that day when, beneath its kindly shade, you may sit down with your wife and your little ones, and eat of its grateful fruit.

The young men of New Hampshire, as well as of all New England, are constantly going abroad. With an increase of the knowledge of the why and the wherefore of agricultural labors, would soon follow an increase of profits, and fast upon their heels an increase of respectability, that is, in the fashionable eye. Then would many of these young men of enterprise stay at home and enter upon the labors of the field, much to their own happiness and the welfare of the State. How pleasant would it be, if through the inducements of a more intelligent and profitable agriculture, we could call these wanderers back from the marts of trade, where they now jostle one another in such numbers that honesty is hardly possible in the strife for living profits. Back from the professions which are so crowded that the land is overrun with professional gentlemen seeking unoccupied spots—back to the old homestead and its green fields, to the spot of their birth, and the neighborhood of their fathers' graves. To exchange the cares and perplexities of traffic and the barterings of a hollow world for the quiet and healthful occupation of tilling and making beautiful and fruitful this blessed earth, the mother of us all, from whose dust we all sprang, and in whose kindly embrace we are all to lie down for our long sleep.

I know of no reason, Mr. President, why farming may not be prosecuted successfully in New Hampshire. In that northern

section of your State, where for six years I had my pleasant home, where those eternal mountains that stood all about us frequently had their heads white with wintry snows ten months of the twelve, by liberal manuring and (what is of equal importance) thorough *tillage*, I was able to raise eighty bushels of shelled corn to the acre; and in the matter of Fruit, was able successfully to compete for your premiums. Nature has placed no obstacle in the way of your most ample success as an agricultural community which she has not also given you the means of overcoming. You have indeed long and severe winters, and in many sections a hard and sterile soil, when put in comparison with the boundless prairies of the West, rich with the accumulations of ages; but where is there richer pasturage than may be found on the slopes of your New Hampshire mountains; and where stretch pleasanter valleys than lie along the sides of your beautiful rivers; and where may the fruit-grower turn his eye more hopefully than towards your warm and sheltered hill-sides, far up above the reach of early frosts and into the genial, mellowing, ripening sunshine? Where gush purer and more living waters? Where sweep more invigorating and health-giving winds? And, Mr. President, where are the MEN to compare with the strong-armed tillers of these hills?

What constitutes a State?
Not high-raised battlement, and labored mound,
Thick wall or moated gate;
Not cities proud, with spires and turrets crowned;
Not bays and broad-armed ports,
Where, laughing at the storm, proud navies ride;
Not starred and spangled courts,
Where low-browed baseness wafts perfumes to pride—
No! men! high-minded men,
Men who their duties know,
But know their rights; and knowing, dare maintain;
Prevent the long-aimed blow,
And crush the tyrant while they rend the chain;—
These constitute a State.

Herein is your strength, your ability to compete with the world, in agricultural, or any other labor or enterprise. It is found in the strength and energy and indomitable perseverance

of your New Hampshire men! Originally an healthy and vigorous stock, and it has been kept in good condition by the constant demands that a hard soil and northern climate have made upon its energies, as the right arm of the blacksmith gains muscle and strength by constant use. Nor were the fathers ever enfeebled by breathing the miasma of pestilential lowlands, nor have the sons (who have staid at home) been unjointed by the shaking fits of the ague.

The energy and go-aheadativeness of the New Hampshire character is everywhere acknowledged, for it has made itself everywhere manifest. Wherever a spade is lifted to dig a canal or throw up a railway, there you will find a New Hampshire contractor. Muster the crews of the ships which are pushing their adventures to the most distant and dangerous seas, and a gallant number of New Hampshire names you will find responding, as you call along the roll. Overtake the thousand companies of emigrants that are constantly on the long march for "the West," and among them all you will find New Hampshire men—and the number will increase as you overtake the more distant trains, those who within the sound of the breakers of the Pacific are erecting their altars in the fear of God and the love of liberty. Everywhere, upon ocean and upon land—in all manner of enterprise—on 'Change and in the Senate and the Cabinet—New Hampshire tact and energy is found playing a leading part. Aye, gentlemen, where has the world seen displayed colossal intellect, in Cabinets at home, and in Courts abroad, if not exhibited by New Hampshire men? And on battle-fields and Senate floor, liberty has found no warmer and braver hearts, or more eloquent lips, than among the men whose birth and home were here. To-day, New Hampshire, in the person of one of her sons, honorably fills the highest place that human ambition may covet.

Mr. President, I find, indeed, that "New Hampshire is a good State to emigrate from." New Hampshire birth—New Hampshire training—New Hampshire blood—these are "backers" that are always "honored." No wanderer can go so far but he shall find these "lawful tender." No matter whether the young emigrant have money or not—if he is from New Hamp-

shire, and can show the *blood*—he has a capital better than gold —the confidence of the people.

Mr. President, what a country is ours, and what a destiny is ours. In this single, though by no means secondary matter of agriculture, how mighty are our resources. We have more than one thousand million acres of available farming lands belonging to the United States, stretching almost from Lancaster Sound, where we send our ships in search of England's ice-bound navigators, quite to our American Mediterranean; through all the varieties of climate, and presenting every variety of soil, and every variety of product. And almost unlimited facilities for river, land and railroad transportation, and two oceans waiting on either hand to float our surplus beef and bread to the hungry markets of the old world. What can more properly demand the attention and encouragement of the American people than agriculture, this great source of individual and national wealth, and social comfort. Give the people HOMES, make them pleasant, secure success and remuneration for their labor, and you have secured a spirit of patriotism and strengthened the love of country and the sentiments of loyalty and harmony. You have harmonious citizens and fraternal States. But, sir, I am forgetting myself. Led on by these pleasant themes, that this platform and these faces have incited, I had forgotten that there were a score of men here who know a thousand times more than I do about agriculture and its kindred topics. Pray, pardon, gentlemen, the trespass I have unwittingly made upon your time and patience. God bless New Hampshire! The "Old Folks" at home—and the sons wherever they wander—and may that ample and continued success that your merits demand, always accompany the NEW HAMPSHIRE AGRICULTURAL SOCIETY!

REMARKS OF HON. JOHN S. WELLS, of Exeter.

Mr. Wells remarked that though accidentally here this evening, and not expecting to address the meeting, yet he would respond to the call upon him by uniting his voice with others in favor of the pursuit of agriculture.

It is said to be a delightful employment, and one to which nearly every man, at some period of his life, turns with pleasure and satisfaction. And though there may be sections more desirable for the cultivation of the earth than New Hampshire, yet he believed, all things considered, that we have great cause for thankfulness at our favorable lot. Go where you will, you cannot find a more comfortable people than the inhabitants of New Hampshire. Poverty is nearly unknown; the advantages of education are ample; the returns of the earth liberal, and substantial comforts are enjoyed by nearly all. While the people of other sections of our country are appalled by the sweeping havoc of disease, we enjoy a pure and healthy climate, ever free from the deadly malaria which poisons the spring of life, and withers the fairest forms in other sections of our land.

He remarked that he dissented from suggestions which he heard in this hall imputing ignorance to our farmers. They may not, said he, understand chemistry and the analyses of soils, and some of the improvements of the day. Yet the farmers of our State understand their business well. The improvements of the farm, the general thrift and neatness which prevail, show that the farming interest is progressing as much as other branches of business. But farmers would perhaps make greater progress if agricultural writers would be more definite in the information which they give.

We can raise in New Hampshire any fruit capable of being produced in Massachusetts. No apples in New England excel those of New Hampshire. The pear is a certain fruit, and so is the peach in the county of Rockingham, if planted on high, dry land, and exposed to the autumn blasts, which harden and fit the young wood to resist the severity of winter. He said he had five hundred pear trees, three hundred and fifty of which

were imported from France in 1851; that in 1852, one hundred and sixty-seven of them bore fruit, and the present year he had bushels of fruit from those trees.

He said he was sorry not to see more full blood animals at the exhibition. He came hoping to see Alderneys, but found none. What we want is to see the pure blooded stock of different kinds, and there should be sufficient inducement to bring them out. Then the farmer could judge for himself, and decide whether he could cross profitably with such animals. But he doubted whether a State Society would effect the object desired. At this fair most of the stock and produce is from the towns in the neighborhood of the fair. But very little has been here from Rockingham, Strafford, Carroll, Sullivan, Grafton or Coos. Now we all know that in those counties are splendid animals, and valuable productions, but the trouble and expense are too great to bring them to the centre. But this difficulty does not exist in the county societies. There competition is excited among the farmers generally, stock and produce are brought in from nearly every town, and every man, woman and child almost is on the alert to see and know who has the superior article to exhibit. I prize the State Fair, believing it has a good influence, but a greater good will in my judgment arise from the county societies, to the farmers generally throughout the State. At the county shows will be the *general productions*. The State show should be only those of the *very highest character*.

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GROUP OF SILESIAN SHEEP, OWNED BY G. W. CAMPBELL, WESTMINSTER, VT.

REPORTS OF THE JUDGES.

On Friday, the third day of the Fair, the following list of premiums was announced from the stand, by the officers:

BULLS.

JUDGES.—E. M. Dunbar, Warner; Thomas Little, Boscawen; George Dewey, Hanover.

The committee on Bulls respectfully submit the following report:—

The show of Devons was good, exceeding in numbers those of any other breed; the different classes being well represented. This breed is gaining ground in the estimation of stock raisers and breeders. For a great majority of our farmers there is no breed which surpasses them. Their uniform character, and the possession of a combination of good qualities, place them ahead of any other breed, so far as work, beef and milk are desirable qualities in the same animal. Being of a beautiful red color, and of a compact form, they are readily matched, and at the same time their sprightly action and docile disposition render them favorites for working oxen. The Devons are not considered great milkers, yet they make good family cows, yielding a fair quantity of milk and of excellent quality. Their early maturity and hardy constitution adapt them to the short feed of our Granite hills.

DURHAMS.—There were only two presented. These were fine animals. This is a large breed of cattle, and has been bred more in reference to beef than for any other purpose, yet their large size well adapts them to heavy work, but they are not so active as the Devons or some other breeds. The Durhams in some instances have yielded large quantities of milk, but there are other breeds which surpass them in this respect. For some sections of the country the Durhams are a profitable breed, but for New Hampshire farmers it is doubtful whether pure bloods will ever become a very profitable stock to raise.

AYRSHIRES.—The exhibition of this stock was small, there

being only two entries made. In respect to size they occupy a medium between the Durham and Devon. The Ayrshires have the reputation of being good milkers, superior to the Durhams; and they have generally sustained this character. They are also good feeders.

NATIVES.—The Natives cannot be denominated a breed, but a race made up of all breeds, being of every color, shape and size. There are, however, many instances of extraordinary animals originating from this mixed race, as milkers, as well as large specimens of beef; but their progeny cannot be relied upon. No doubt that by correct principles of breeding for a succession of years, *there might be a breed obtained* the progeny of which would be uniform, but would not be superior to the best breeds we now have.

We noticed very fine animals, a cross between the Devon and Durham. Superior animals may be obtained by crossing the Durham cow with the Devon bull. This *cross* nearly retains the size of the female, and at the same time transmits the peculiar characteristics of the male; but experience has proved that the progeny of this cross-breed deteriorates in value in succeeding years.

Of bull calves, there were fine specimens exhibited of Devon and mixed breeds, some of which bore the marks of high keeping.

This high keep in young animals is decidedly wrong, unless intended for the butcher. Calves intended for breeders should have nothing more than good fair keep, as very high feeding forces an unnatural growth and injures them for the purpose of breeding. The rearing of cattle is one of the most important branches of farming. It should be the object with a great majority of our farmers to raise such cattle as mature early, and return us the greatest profits at the least expense. In keeping stock we should have a definite object in view. If we desire a combination of qualities in the same animal, such as work, beef, milk and early maturity, select that breed which combines these qualities in the highest degree. If beef is the main object, procure that breed best adapted to the purpose. We should

be governed by the same rules relative to other points. We should, also, in our selection of stock, be governed by location, soil and feed. By selecting that breed best adapted to our circumstances, and managed judiciously, we cannot fail of success.

Abner Knowlton, Stoddard, for best Devon over three years old,.....$12 00
E. Eastman, Gilmanton, for second,..... 8 00
Samuel Cochran, Walpole, for third,.....Transactions.
J. B. Cilley, Deerfield, for best Devon, two years old,.... 7 00
Nathaniel Sawyer, Salisbury, for second,..... 4 00
Jas. M. Whiton, Woodlands Farm, Holderness, for best Devon, yearling,..... 4 00
E. Eastman, Gilmanton, for second,.....Transactions.
S. & A. Seward, Sullivan, for best Durham over three years old,.....12 00
A. P. Balch, Hanover, for second,..... 8 00
Third premium not awarded.
Two years old and yearlings—none entered.
Stephen Scammon, Stratham, for best Ayrshire over three years old,.....12 00
John Preston, New Ipswich, for second,..... 8 00
Third premium not awarded.
Two years old and yearlings—none entered.
Joseph Wright, Keene, for best Native or mixed,..... 8 00
William Parker, Suncook, for second,..... 5 00
O. W. Bailey, Manchester, for best calf,..... 5 00
Isaac C. Flanders, Manchester, for second,.....Transactions.

E. M. DUNBAR, for the committee.

COWS.

JUDGES.—S. B. Little, Boscawen; John Plumer, Goffstown; Enoch Coffin, Boscawen.

The committee on Milch Cows report that the number of animals coming within the scope of their duties was not large, and with respect to all but one the terms of the competition were not complied with, by furnishing any statement whatever with regard to the milking qualities of the animals. One full blood Devon, entered by J. M. Whiton of Holderness, accompanied by the result of the experiment of weighing the milk, which was an aver-

age of 36 4-7ths pounds per day in June, and 19 5-14ths in September. We consider him entitled to the first premium offered for that kind of stock, $10.

Mr. Whiton is entitled to the gratitude of New Hampshire farmers that he returns to his native State, to use his wealth earned in early life in another pursuit and another State, to give them the benefit of improved stock and his experiments in agriculture.

Another entry was found on the book, but no label was found attached to any animal to designate it.

Of Durhams entered there were two—both fine animals. One exhibited by Mr. Shepard of Manchester, was the largest specimen of the *cow kind* ever seen at our Fairs, but probably has seen extra feed. The other, by Mr. Bailey, seemed by her appearance as worthy of a premium.

There were some entries of Native and mixed blood, fine specimens of the race, and your committee tend so far to *conservatism*, if not *fogyism*, that we are unwilling to yield to any other breed which we have seen, any great superiority. In regard to the Native cows our judgment of their respective merits, in the absence of all knowledge, was as entitled to the first consideration, a cow of Jacob Mead, good size and form, and indications of being a good milker.

Next a cow of Cyrus Cressy of Bradford, twelve years old, not so good color as Mr. Mead's, nor quite so compactly built, though not decidedly *lathy*.

The third we were of opinion was a Native cow with a small mixture of Devon blood, belonging to Wm. Hays & Son, of Sanbornton.

It will be seen that on account of the absence of statements of the milking qualities of the cows, we award no premium except to James M. Whiton the premium of $10 for the best Devon cow. If the Society should conclude to award premiums, notwithstanding the absence of statements, we would recommend them in the order indicated.

We will add that no Ayrshire cows were entered.

S. B. LITTLE, for the committee.

HEIFERS.

JUDGES.—Adam Chandler, Bedford; W. H. Dudley, Brentwood; John Clark, Auburn.

The committee on Heifers proceeded to the duties assigned them, and make the following report:—

James M. Whiton of Holderness entered for premiums seven heifers, varying in age from four months seven days up to two years six months and six days, all of which have more or less of the Devon blood, and some were pure bloods.

Your committee would here remark that they were restricted by the rule from giving any awards except to the pure bloods of Devon, Durham and Ayrshire, consequently the number entitled to premiums, there being none of the two last mentioned present, was quite limited. The heifers presented by Mr. Whiton were all good, and of a character to elicit the praises of judges of stock. The character of the Devon stock is so well established that any remarks of ours would be entirely superfluous.

E. Eastman of Gilmanton presented a two years old Devon heifer, which your committee thought superior to any other present, and of course he would be entitled to the first premium of.....$8 00

Jas. M. Whiton, Holderness, for second,..... 5 00

I. C. Flanders of Manchester entered two yearling heifers of the Devon breed, one of which we thought worthy of the third premium.

Wm. Parker of Suncook entered a heifer calf eleven months old, one-quarter Ayrshire, one-quarter Durham, and one-half Native. It was a beautiful calf, and had developed many of the prominent points which constitute a valuable cow, and the committee were in favor of a gratuity to Mr. Parker of $4 00

N. Harris of Pembroke presented one two years old heifer and calf, which were worthy of notice and deserves some eencouragement, and to him we would recommend a gratuity of $4 00.

Wm. Hayes & Son of Sanbornton Bridge exhibited one heifer calf, Hungarian breed. This is entirely new stock in this section of country, therefore we are not prepared to speak of the

utility of propagating the breed; we can only say that she was uncommonly large of the age, and might perhaps make a profitable cross with our native stock, and to Mr. Hayes & Son we would also recommend a gratuity of $4 00

To a cherry heifer of Mr. Whiton's, part Devon and part Creampot, aged one year four months and 25 days, we would further recommend a gratuity of..... $4 00

In conclusion, we would just say that we believe both the Society and community would be greatly benefitted by some encouragement to those experimenting by a cross of stock.

—

Every year gives additional evidence of the gradual improvement which is making in this State in our stock of cattle, sheep, horses and swine.

By careful and judicious crossing with some of our native cattle, there might no doubt be produced a breed that would be valuable both for work, the dairy and the shambles, and which would be better suited to our climate, and better prepared to endure the careless treatment common among us.

Many of our good farmers are deterred from the raising of stock from the mistaken notion that it is not a paying business. We would enquire, to what account could the farmer better turn his attention than the raising of Devon heifers, which at two and a half years of age will bring him from twenty-five to thirty dollars per head, and in some cases even more than that.

But he is not confined to the Devon alone; there are the Durhams and Ayrshires, and in many cases the choice native stock brings remunerating prices; and then again when we take into consideration that we could raise but little hay without stock, that stock on the farm is what *makes the farm*, we should be inclined to more liberal calculations. There are many districts in which it will pay well to rear superior milkers, beef cattle and working oxen, where the growing of ordinary stock is a losing business.

Every close observer, who has paid attention to the subject, must know that the necessary cost of breeding fine animals and

bringing them to maturity, does not much exceed that of producing indifferent ones of equal weight; and yet a good cow sells readily at double the price of a poor one, and then yields a better profit to the purchaser than the latter.

In the Transactions of the Essex County Agricultural Society of Massachusetts, we find a number of statements respecting the productiveness of milch kine. A two years old heifer, half Native and half Durham breed, five weeks after the first calf, gave ten quarts of milk per day, and six pounds of butter were made from her in one week. Another is mentioned, from which, in June, from one week's milk, at ten to twelve quarts per day, was made eight pounds of butter, and in September eight quarts of milk, four days of which being set, produced four pounds of butter.

It may be said that these are extraordinary cases, and the result was produced by extra expense and over exertion, hence it would be inexpedient for others to pursue a similar course. Nothing however of the kind is said in the report, and we fully believe that such occurrences would frequently happen if a due regard was observed in our selection of stock, and a proper care in feeding was practiced.

There are certain signs which are indicative of a good cow. Many of these are as fully developed in the heifer of two years old as at any subsequent period, thereby giving the experienced person who wishes to purchase a very decided advantage over the inexperienced one. If I were competent to describe these signs, I should take great pleasure in doing so, but presuming that others are better informed than myself on this subject, I shall not undertake to give any directions on the point.

I fear that some of our farmers are running into the extreme in the selection and importation of blood stock. With some, everything that is new is the best. To be far-fetched and dear-bought establishes a reputation, regardless of all defects. I am of the opinion that farmers often deceive themselves; when they get an animal of a new breed, they give it altogether better keeping than their old breed receives, and such usage renders the new better looking and more productive: the new breed is credited

with advantages which are really due to increased care and feeding.

ADAM CHANDLER, for the committee.

WORKING OXEN—COUNTY TEAMS.

JUDGES.—E. J. Glidden, Unity; Joseph L. Cilley, Exeter; William Hoyt, Danville.

There were only three teams entered, all of which would do credit to any county in the State.

The committee awarded to the county of Cheshire, for the best team of ten yokes,	$50 00
County of Merrimack, for the second,	40 00
County of Hillsborough, for the third,	30 00

E. J. GLIDDEN, for the committee.

TOWN TEAMS.

JUDGES.—J. S. Fernald, Barrington; James Cofran, Northfield; J. B. Wentworth, Rollinsford.

The committee on town teams report, that only three towns competed for this premium. The committee were unanimous in the opinion that Concord was entitled to the first premium. In awarding the second, the committee did not so readily come to a conclusion. The towns of Keene and Roxbury were the others presented for examination. The teams from those towns were very excellent, uniting strength and firmness of body with beauty of form. The committee finally concluded that the second premium was due to Roxbury. The committee would remark that the Keene team was composed of some excellent animals. A pair owned by Mr. Joseph Wright were worthy of commendation. They were handsomely formed, and were in excellent order. Mr. A. H. Towne was the owner of another pair presenting some excellent points, which elicited remarks of commendation.

The committee award to Concord, for best team,.....$20 00
Roxbury, for second,..... 15 00
Keene, for third,..... 10 00

J. S. FERNALD, for the committee.

SINGLE TEAMS.

JUDGES.—Reuben Clough, Jr., Warner; Geo. Clark, Manchester; Gordon Atwood, Bedford.

There were 21 yoke of Working Oxen, four years old and over, entered as single teams. The committee award on five years old and over as follows:

Joseph Wright, of Keene, for best yoke,.....$12 00
N. P. Fogg, of Concord, the second,..... 8 00
A. H. Towne, of Keene, the third,.....Transactions.

On four years old Oxen they award—

David W. Buckminster, of Roxbury, for best yoke,.....$8 00
Emerson Furber, of Farmington, for second,..... 5 00
David W. Buckminster, of Roxbury, for third,....Transactions.

Your committee would further say, that the working Oxen entered for premiums were very good and in first rate condition for services; but we very much regret that the owners were deprived of the privilege of exercising their oxen in such a manner as to show their skill in handling the cart and plow. And the owners were very much dissatisfied with the management of the officers of the day, who we hope will make better arrangements in future.

REUBEN CLOUGH, JR., for the committee.

STEERS.

JUDGES.—Wm. R. Kimball, Cornish; Converse Goodhue, Enfield; A. Burbank, Boscawen.

The committee found that only three pairs of Steers were entered for premiums. We award,

R. J. Sanborn, Deerfield, for best pair of two years old,.. $6 00
T. G. Holbrook, Bedford, for second, ... Transactions.
Daniel M. Shirley, Goffstown, for best yearling Steers,... 4 00

WM. R. KIMBALL, for the committee.

BEEF CATTLE.

JUDGES.—J. M. Weare, Seabrook; James Hersey, Manchester; Samuel Head, Hooksett.

Benjamin Hill, Northfield, for best fat cattle, ...$8 00
Wm. Hayes and Son, Sanbornton, for second,..... 6 00
M. Brown, Henniker, for fat ox, ... 5 00

Your committee would further report, that the fattening of animals is not made a system, which in the opinion of your committee the importance of the subject demands. It is left too much to the force of circumstances with the farmers of New Hampshire. According to the observation of your committee, some of the animals that are fatted for slaughter are of a natural disposition to fatten, and running in pasture through the summer, they become fit for the shambles, and are slaughtered before in fact they come to maturity. Such is the case with steers and heifers. The hand of the butcher is on the slick, bright-eyed heifer, and the price offered is too tempting for the farmer to withstand. He disposes of the best, and is forced to breed from the meaner ones. With some farmers it is made a point to stall feed a certain number every winter, perhaps two or four oxen and one cow. They are selected more by the force of circumstances than from a propensity to fatten. The oxen are old, perhaps, and are no longer fit for labor; the cow no longer fit for dairy purposes on account of age, or some other cause. With his stock in this situation, and his barn none the warmest, e goes to work feeding out potatoes and vegetables of all kinds,

in a raw state, his corn on the ear or ground coarse, cob and all together, to fatten his stock.

Your committee can conceive that under such circumstances it would be unprofitable business to stall feed cattle.

In the almost entire absence of fat cattle from the Fair grounds, your committee are in hopes that the society will take energetic measures to awaken the farmer to a more systematic course in the fattening of stock; and they are of the opinion that the society should encourage well regulated experiments in fattening cattle with different kinds of food and different ways of preparing and feeding it, whether raw or otherwise, with the amount of gain of animal weight to a given amount of food; the kind and condition of the stock; when the experiment commenced, and the previous management of the same, and all other regulations the officers of the Society see fit to carry out.

JOHN M. WEARE, for the committee.

HORSES.

JUDGES.—William S. King, Boston; S. W. Dearborn, Exeter; Cyrus Barton, Concord.

There were 50 entries of Stallions, not one of which would have discredited Scott in his triumphal entry into the "City of the Montezumas." But for all these rampant competitors there were but seven premiums—the numerous demands upon the funds of the Society not allowing more; then again the committee were directed to award for "the best Stallion for the farm and the road; speed in trotting, bottom and *pedigree* especially being considered," &c. Here, at once, is a stumbling block; the best horse for the road—the fastest—is not usually the best for the farm. The committee determined to mete out equal and exact justice, however, as far as it could be done under these circumstances, and awarded premiums as follows:

STALLIONS.

S. C. Hall & Co., Manchester, for their Sherman Morgan "Black Hawk," $20 00

D. M. Taggart, Goffstown, for "Farmer's Beauty," ... 15 00
Lyman W. Webster, for his chestnut Stallion,..... 15 00
D. K. Marvell, Milford, for his grey "Flying Morgan," 10 00
S. H. Edgerly, Manchester, for his Green Mountain Morgan horse, ...Transactions.

STALLION COLTS.

D. M. Taggart, Goffstown, for his two-year old "Black Warrior," 15 00
Richard Welsh, Plaistow,..... 10 00
John S. Carr, Goffstown,..... ..... 10 00
Moses Wilkins, New Ipswich, ...Transactions.

Mr. Bailey of Weare drove upon the field, on the last day of the show, an elegant horse got by old Green Mountain Morgan; but as the horse was not entered on the committee's book, and especially as one of the two original members of the committee had left the field for his home, the chairman did not feel at liberty to pronounce upon him as a candidate for premium; he can now but express his regret that any accident should have prevented the exhibition and examination of this noble animal.

The committee recommend a bestowal of the Transactions of the Society for the horses named below, as an evidence of excellence:

Messenger horse, owned by Henry H. Smith, Newmarket;
Nine years old grey, owned by Robert Evans, Dover;
Six years old horse, owned by Daniel Cate, Manchester;
Mahogany bay horse, owned by Richard Dalton, Newmarket;
Granite State Black Hawk, owned by Z. J. Wiggin, Stratham;
Off-horse of span owned by S. C. Hall & Co., Manchester;
Black Hawk Stallion, owned by J. Abbott & Co., Manchester;
Morgan horse, owned by E. B. Cavender, Peterborough;
Gifford May Fly, owned by D. M. Taggart, Goffstown;
Morgan horse, owned by C. C. Whitehouse, Farmington;
Sorrel Stallion, owned by J. P. Ladd, Hill;
Morgan Stallion, owned by E. N. Huntington, Lebanon;
Morgan colt, owned by J. S. Noyes, Deerfield;
Morgan colt, owned by A. Buckminster, Manchester.

On the last day of the show the track was given to this committee to test the speed of the horses on their list; and when these had been satisfactorily tested, the committee consented to take and record the time made by horses other than stallions. The track is one-half of a mile in extent; the name of the horses and owners is first given, and then the time in which the nags "did" the half mile.

R. Dalton's b. s. 1.42; second trial, 1.40; H. H. Smith's "Emperor," 1.34; L. W. Webster's ch. s., 1.37; Huntington's, 1.35; Hall & Co.'s Black Hawk, 1.37; D. K. Marvell's "Flying Morgan," 1.30; Evans' "Moscow," 1.32; Nealy's "Abdallah," 1.35; Welsh's three years old, 1.56; Buckminster's "Pingree horse," 1.58; Cavender's Morgan horse, (to wagon,) 1.55; a pacing mare, 1.28; F. R. French's pacer, 1.32 1-2; Cheney's mare, 2.04.

The immense crowd of spectators, which numbered over five thousand, having expressed a general desire to witness matches between the swiftest horses, and the owners kindly consenting, D. K. Marvell's "Flying Morgan" and Robert Evans' "Moscow" were entered for a match—best 2 in 3, half mile heats.

1st heat, Moscow breaking badly, gave up the heat; and Morgan slowly trotting around the course, was declared the winner. The 2d heat was won by Moscow in 1.28; the 3d heat by Flying Morgan, in 1.29.

"Granite State Morgan," owned by L. W. Webster, and H. H. Smith's "Emperor" were next called for; half mile heats, best 3 in 5, being the terms agreed upon by the parties. Granite State won the 1st heat in 1.39 1-2, and Emperor the three succeeding, in 1.38, 1.34, 1 37 1-2, respectively.

The hour for reading the premiums having been declared to have arrived, the crowd poured towards the speaker's stand, and the exciting spectacle was at an end.

It is difficult to decide at what period of its history to commence our account of the stallion colt. If we begin at his birth, we are reminded of various matters antecedent to that, to him, important epoch, that have a material influence upon his after life. To be safe, let us go back to his progenitors.

As males communicate their organizations with the most obvious effect, it is by no means singular that great stress is laid, by breeders of horses and other animals, upon the appearance, physical conformance and constitution of the sire. This is commendable. But farmers and breeders generally are not as fully aware as they should be, that various items, other than color, style and figure, are transmissible from sire to son. These are contracted feet, founder, spavin, ring-bone, curb, sand-cracks, diseases of the eye and of the respiratory organs, as broken wind, roaring, wind-sucking, &c. &c. We are as fully persuaded that these affections and diseases are hereditarily transmissible, as that color, action or temper may be so transmitted.

At the late national exhibition of horses, held at Springfield, Mass., the writer was chairman of the committee on geldings, in which class were 109 entries. Many of the finest horses subjected to their examination were found to be affected with ring-bone and other diseases of the leg and foot; and the reply to the questions of the committee on this point invariably was—"*he was foaled so.*"

In this view of the case, it becomes breeders to look well to it, that the selected stallion has no hereditary tendency to disease, or defect capable of being transmitted to the offspring; for "like begets like," and as surely as a noble steed can mark his offspring with his good qualities, so certainly can he hand down, also, his imperfections of temper and formation.

If men are too often careless in the selection of a stallion for purposes of breeding, what shall we say of the choice of a mare? Any old, decrepid, diseased, purblind she-horse that can be procured, or that is found fit for no other purpose, is considered good enough to breed from! And many such an old, good-for-nothing-but-the-compost-heap creature, is kept by farmers and others for this especial and only purpose. Knowing this, one ceases to wonder that the country is stocked with such a superabundant supply of miserable, early broken-down and diseased horses—inasmuch that he who now-a-days undertakes to buy a horse on his own judgment, unless he goes with his eye peeled,

and "had his eye teeth cut," at an early period of his existence, will, ordinarily, find himself sold remarkably cheap.

"Any one," says Mr. Castly, an eminent English veterinary surgeon, "who, during the last twenty or twenty-five years, has had frequent opportunities of visiting our great horse fairs, in the north of England, must be struck with the sad falling off there is every where to be remarked in the quality of the one-half and three-part bred horses exhibited for sale. The farmers, when taxed with this, complain that breeding horses do not sufficiently repay them; and yet we find large sums of money always given at fairs for any horses that are *really good.* The truth is, that farmers do not, now-a-days, breed horses so generally good as they used to do; and this is owing to the *inferior quality of mares* which they now commonly employ in breeding.

"Some of the best mares, it would appear, are now purchased by gentlemen for saddle-horses—it being now, as it was not formerly, as fashionable to use mares as geldings for riding purposes. A great number of the finest three-part bred mares, also, are imported to the continent."

These facts account for the deterioration of the horses in ordinary use in England, and most of them are in force here. Many an old broken-down creature is purchased, or kept for a breeder, because she is *fit for nothing else!* Fit for nothing else? If fit for a breeder, (unless injured by some accident,) she is fit for any thing else.

Sire and dam being judiciously selected, our next care is with the unborn colt—the fœtus. Our next *care*, we say, for the young courser may be starved, or otherwise maltreated, as effectually before as after birth. The mare, when with foal, should be well, but not plentifully fed—should not be over-worked, nor yet allowed to lack exercise, and should never be subject to such rough usage as is but too common among farm hands and stable boys, who are ever over-free with the toes of their cowhide boots. Discharge such at once, after having treated them to "a little of the same," to see how they like it; for no one taken down with the accursed disease of "cruelty to animals," was ever radically cured of it.

It is well to offer the mare, immediately, and for a few days after parturition, a drink of lukewarm water, with corn or oatmeal, or shorts, mixed therein. She should then be permitted to run out to grass for a month, at least, to recover strength; though the common custom, we know, is to put them in harness within a fortnight from foaling.

Our young stallion being now fairly in the world, and moving upon it on his own legs, his first experience of life is stirring. The old farmer has an errand to the neighboring village, distant some six or seven miles. "Put Bessy to the old chaise," says he; and off he drives with commendable moderation—little Morgan trotting in company; but business being concluded at the store, rain threatens, or other cause induces a hasty return, and we see Bessy doing all she knows how to get home in season, and little Morgan doing a little more—to keep up. His long, lank legs get soon tired; his footing is a little unsure; his bellows gets out of order; he is overheated; he lays the foundation of troubles that are perfected in the full-grown horse.

For the first six months of his life, the chief food of the foal is "mother's milk," although he will pick up, now and then, a little else, with all the pride of incipient horsehood. If the mare be insufficiently fed during this period, or overworked, (which lessens her yield of milk,) the foal is, in either case, half-starved; and a half-starved colt is almost never well made, when he arrives at maturity. He is always a *weed*. He should be well fed from, and before, the time of his birth.

At one year old, though the colt has by no means attained his fullness of form, it may be decided whether or not to retain him as a stallion. If, at this age, however many good points he may possess, indications of contracted feet, founder, or any of the other diseases heretofore mentioned as transmissible, be seen, geld him at once. He ought not to serve as a stallion.

At three years old, a horse may be allowed very moderate service. Over-taxation of his powers at this age—or at any age, for that matter—is short-sighted policy for the owner. As a four year old, he will be more matured and full of vigor, and at five, he is still more able to do service. It is a too common fault,

this over-taxation of a stallion's powers; and it tells both on himself and on his get. The English limit for a prize horse that "travels his district," is sixty mares in a season; but eighty are often covered without prejudice. What shall we say of horse owners who boast of having had double these numbers served in a season by their horse—sometimes three a day!

A notable instance of the evils of over-taxing a horse's procreative powers occurred in England many years ago, in the case of a celebrated stud belonging to H. R. H. the Prince of Wales. The groom was permitted to pocket a half guinea fee from all comers; and it may well be guessed that no applicants were refused. The consequences were serious to the horse, and to very many of his get. Another instance is within our knowledge. A stallion of some repute in New England was allowed to serve one hundred and forty-three mares in a season, and was then sold to go to Virginia. Most of his colts of that year proved miserable creatures; and in Virginia, in the year following, he himself proved perfectly impotent.

The small size of very many—I may say of a large majority—of our horses, is an evil that is great and growing, (like a cow's tail—downwards.) This may be attributed to a poor selection of breeding mares, the scant feeding of the dam, before and after foaling, thus half starving the foal; bad usage of colts by stinted food or unsheltered exposure to cold and storms, and the general over-taxation of the powers of stallions.

We are well aware that some persons who pass as wise men in matters of horse-flesh, contend that this smallness of size is no objection to a horse, and cite for proof the fact that some of the fleetest Arabian coursers are but fourteen and one-half hands high. Admit that these Arabian lightning-streaks are of so small a size, and what does it prove? Nothing. When the American's horse has nothing to do but to bear a hirsute and pinguid vagabond over sand deserts, on hen-roost robbing expeditions, fourteen and one-half hands will be high enough, (until the rider rivals Haman.) But so long as the farmer has sward land to plow, cord-wood to draw, and a stout wife and half-score of stalwart sons and buxom daughters to be driven to meeting or

to the State Fair—so long as our city carriages are ponderous, and trucks weighty, so long shall we need a little more height in our horses, and that not all in the legs.

The subject of increasing the size of our horses will more properly be discussed by the committee on Breeding Mares; for it is with the mare that the improvement must commence. To subject small mares to large sized stallions will not effect the desired change. It will give us, as it did to the Yorkshire farmers who tried a similar experiment, "a race of long-legged, large-boned, small-chested, worthless animals." Such, also, was the ill effect, said our lost friend J. S. Skinner, of the cross by a large "Cleveland Bay" stallion, imported and sent to Carroll's Manor, Maryland.

"The proper method," says Prof. Cline of London, "of improving the form of animals, consists in selecting a well-formed female, proportionably larger than the male. The improvement depends on this principle—that the power of the female to supply her offspring with nourishment is in proportion to her size, and to the power of nourishing herself from the excellence of her own constitution."

"The size of the fœtus," he continues, "is generally in proportion to that of the male parent, and therefore when the female parent is disproportionably small, the quantity of nourishment is insufficient, and her offspring has all the disproportion of a starvling."

"To produce the most perfect formed animal," adds the same high authority, "abundant nourishment is necessary from the earliest period of its existence, until its growth is complete." This sustains the view that we have hereinbefore advanced.

We here conclude the report on Stallions; not that we have said all that we have to say on the subject, but because we wish what we write to be read; and long stories find few listeners. At some future time, another opportunity may be afforded us of discussing the subject further.

WILLIAM S. KING, for the committee.

MATCHED HORSES.

JUDGES.—James H. Butler, Nottingham; Luther D. Peaslee, Kingston; Morris Clark, Whitefield.

Hill & Cheney, Manchester, for best pair,.....$10 00
Andrew J. Gale, Sanbornton, for second, ... 7 00
J. D. Prescott, Bristol, for third, ...Transactions.
J. Abbott & Co., Manchester, for fourth, ...Diploma.

There were also presented by Hall & Hubbard, of Manchester, two excellent work horses. Your committee are of the opinion they were not within their consideration, one being a stallion. There were also presented by S. C. Hall of Manchester a beautiful span of Black Hawk Morgan four years old stallion horses, which your committee would have been glad to have considered longer had they thought that stallions were within their jurisdiction. Had they been geldings, with their present appearance your committee would have cheerfully awarded them all within their control.

There were several other spans of very fine horses presented, but your committee could go no further.

All of which is respectfully submitted.

JAMES H. BUTLER, for the committee.

BROOD MARES.

JUDGES—John B. Clarke, Manchester; Asahel Smith, Hanover; Moses Eaton, jr., South Hampton.

S. H. Edgerly, Manchester, for best,.... .....$10 00
Henry Tibbetts, Gilmanton, second,..... 7 00
Samuel Colby, Pembroke, third,.....Transactions.
R. J. Sanborn, Deerfield, fourth,.....Diploma.

JOHN B. CLARKE, for the committee.

COLTS.

JUDGES.—Israel Hunt, Nashua; E. B. Strong, Orford; Gerrish P. Drew, Dover.

The committee on three years old colts and under that age,

having attended to the duties assigned them, report that very few animals of that description have been entered for a premium at the present fair, and those are of an ordinary character. One two years old colt, entered by John S. Noyes, of Deerfield; George M. Stevens of Manchester, two colts—a mare twenty-eight months old and a gelding three years old; L. B. Philbrick of Deerfield, two years old gelding, (native); William Hayes & Son of Sanbornton Bridge, two years old colt, sired by Black Hawk; Charles Quimby of Epsom, a native mare, three years old; Stephen French of Bedford, two years and six months; Samuel Colby of Pembroke, one year old colt; John Robie of Weare, three years old mare; J. M. Rowell, Manchester, three and a half months old mare; Thomas Wilson, Dunbarton, three years old mare; Michael T. Noyes of Atkinson, two years old mare.

They have carefully examined all the animals entered, seen their movements and learned their stock, and have come to the following result:—

Mare Colts.

They award the first premium to Wm. Hayes & Son, Sanbornton, ... $8 00
Joseph M. Rowell, Manchester, second, ... 5 00
George M. Stevens, Manchester, third, ... Transactions.
Charles Quimby, Epsom, fourth, ... Diploma.

Gelding Colts.

John Robie, Weare, first premium, ... $8 00
George M. Stevens, Manchester, second, ... 5 00
Levi B. Philbrick, Deerfield, third, ... Transactions.
Samuel Colby, Pembroke, fourth, ... Diploma.

ISRAEL HUNT, for the committee.

Geldings and Mares.

Judges.—Walter Harriman, Concord; Wm. F. Estes, Dover; Z. J. Wiggin, Stratham.

D. M. Taggart, Goffstown, for best animal, ...$8 00
Farmer, Merrill & Co., Manchester, for second, ... 5 00
N. D. Garman, Gilmanton, for third, ...Transactions.
Samuel Colby, Pembroke, for fourth,.....Diploma.

Fifty horses were presented to this committee for examination, and among the number there were twelve or fifteen of fine appearance and good movement.

The judgment of the committee is, that the first premium should be awarded to David M. Taggart of Goffstown. The horse which draws this prize is a bay colored Morgan horse, six years old, and a fast trotter; smooth bodied, close jointed, active, kind and well broke. This horse, taken all in all, stands at the head of the column.

The second prize the committee award to Farmer, Merrill & Co., of Manchester. The horse which takes this second position is an eight years old gelding, of the Morgan breed; size rather small, but a showy, good moving, tough and serviceable beast.

The third prize is awarded to N. D. Garman, of Upper Gilmanton. His animal is a black colt, four years old, weighing 1050 lbs. For a horse so young and inexperienced, his appearance and action are excellent.

The fourth and last prize is awarded to D. D. Perkins, of New Market. The excellence of his horse consists in his speed as a trotter and his perfect training.

The committee regret that there were not more prizes at their disposal, for many excellent horses have been passed by entirely unnoticed in this report. They regret also that the crowd of people was such as to prevent, in a great measure, a fair and satisfactory exhibition of the horses which were entered for premiums.

WALTER HARRIMAN, for the committee.

SHEEP.—Fine Wool Buck.

Judges.—A. Melvin, Weare; A. Topliff, Hanover; Joseph Barnard, Hopkinton.

George Dewey, Hanover, for best buck and fleece,.....$10 00
George W. Cutting, Lyme, for second, ... 8 00
William Hayes & Son, Sanbornton, for third, ... 5 00

The committee would remark that they make the highest award to Mr. Dewey, because he complied with the requirements of the Society, and exhibited the fleece with the buck. There can be but little doubt in regard to the excellence of Mr. Cutting's sheep. Had he complied with the rules of the Society, he would have been entitled to the first premium.

A. MELVIN, for the committee.

Fine Wool Ewes.

Judges.—Hiram Brown, Manchester; E. A. Miller, Hanover; Enoch Little, Boscawen.

In this department there were entries made by five different persons, but only *one* person complied with the rule in bringing the fleeces with the animals. All the animals offered to the inspection of your committee were in fine condition, and worthy of commendation, judging from the appearance of the animals and the representations made of the feeding and treatment. Your committee are of the opinion that the first premium should have been awarded to Mr. G. W. Cutting of Lyme, but from his failing in complying with the above regulation, they do not feel authorized to make that award.

Mr. George Dewey of Hanover entered five merino ewes and presented their fleeces; they were fine specimens of their race, and were well worthy of receiving premiums. Your committee have awarded to him $10; and for five merino lambs a volume of Transactions.

Under the rule laid down by the Society, no other competitor is entitled to a premium, but in consideration of the excellent appearance and real worth of the animals presented, your committee would recommend that Mr. G. W. Cutting, Lyme, receive for a lot of five two years old ewes,.....$8 00
For second lot of same,.....5 00

For six ewe lambs,.....Transactions.
For one pen of buck lambs,.....7 00

Your committee would also recommend that William Hayes & Sons, of Sanbornton, for five merino ewe sheep, should receive the award of $5 00

Messrs. Hayes & Sons presented five merino ewe lambs and one buck lamb, which received the commendation of your committee.

The other competitor was Mr. True Morse of Dunbarton, who offered three buck lambs, four months old, and five ewe lambs of the same age, which were far from being inferior animals. Your committee would recommend one volume of the Transactions of the Society to him.

Your committee regret that there was not a larger exhibition of animals in this department; they are of the opinion that were the same care and attention bestowed upon sheep as upon other animals, our farmers would find wool-growing more profitable. The raising of sheep in this State has received less attention than formerly. Your committee do not hesitate to recommend farmers to adopt the different varieties of sheep exhibited, and follow the manner of treatment adopted by those exhibiting them. The only secret is in taking proper care of the sheep, to shelter them well from the cold, and to devote extra attention to the ewes and lambs in the winter and spring.

HIRAM BROWN, for the committee.

South Downs.

Judges.—Francis Patten, Candia; John Q. Adams, Concord; B. P. Burpee, New London.

No entries.

Fat Sheep.

Judges.—A. Emerson, Candia; L. M. Chadwick, Boscawen; R. G. Wyman, Concord.

No entries.

SWINE.

JUDGES.—Pliny Hall, Croydon; C. Hutchins, Concord; Amos Page, New London.

William Parker, Suncook, for best boar, ... $6 00
Jas. M. Whiton, Holderness, for second, ... 4 00
Benj. Hall, Bedford, for third, ... Transactions.
Henry Shaw, Sanbornton, for fourth, ... Diploma.
James M. Whiton, Holderness, for best sow, ... 6 00
Wm. Parker, Suncook, for second, ... 4 00
Henry Shaw, Sanbornton, for third, ... Transactions.
Rufus Hall, Manchester, for fourth, ... Diploma.
James M. Whiton, Holderness, for best litter of pigs, ... 6 00
do do do for second, ... 4 00
Benjamin Lane, Manchester, for third, ... Transactions.

PLINY HALL, for the committee.

POULTRY.

JUDGES.—R. W. Currier, E. Kingston; John Tilton, Gilford; Joseph Pinneo, Hanover.

Asa Brown, Manchester, for Spanish fowls, ... $2 00
George Porter, Manchester, for best Dorkins, ... 2 00
J. F. H. Sawyer, Manchester, for best Bolton Greys, ... 2 00
Nahum Blanchard, Canterbury, for second, ... Diploma.
Charles Emerson, Dover, for best China fowls, ... 2 00
John H. Maynard, Manchester, for second, ... Diploma.
Joshua Burns, Goffstown, for best Poland, ... Diploma.
Isaac Huse, Manchester, for best variety, ... 5 00
James Harville, Manchester, for best Aylesbury ducks, ... 2 00
Benj. Hartshorn, Manchester, for second, ... Diploma.
" " " for best Poland ducks, ... 2 00
Nahum Blanchard, Canterbury, for best Bremen geese, ... 2 00
C. E. W. Clough, Manchester, for Bantams, ... Diploma.
Stevens James, Manchester, for chickens, ... Transactions.
Daniel Whittaker, " " ..... Diploma.
J. W. H. Ayer, " for hen, ... Diploma.
B. F. Currier " for Bantams, ... Diploma.
Charles Emerson, Dover, for African fowls, ... Diploma.
Ezekiel Jacobs, Manchester, for Bantams, ... Diploma.
F. M. Boutelle, " " ..... Diploma.

A. P. Bateman, Georgetown, Mass,, for cage of pigeons, Diploma and Transactions.
Henry Haywood, Manchester, for pigeons, ...Diploma.
C. C. Plaisted, Great Falls, Bramah Pootra fowls,...Diploma.

R. W. CURRIER, for the committee.

FARM IMPLEMENTS.

JUDGES.—L. Bartlett, Warner; Wm. P. Riddle, Manchester; A. G. Comings, Mason.

The committee on Farming Implements submit the following report:—

In Class I, there were numerous plows entered for premiums. There was much difference in the finish of the wood and iron work of the several manufacturers. From remarks we frequently heard made by practical farmers, while examining the different plows, we found some thought the plows made by Doe & Co. of Concord were the number one for turning the soil upside down, while others gave a preference to Robinson's for turning the soil downside up, while others claimed for Pearson & Tarbell of Milford the honor of manufacturing the best plow for inverting the sod and pulverising the soil. Amid such conflicting views of practical farmers, the committee thought it best to test the matter by actual trial. Oxen were provided, and several plows of each manufacturer were alternately held by the members of the committee. The soil was light and loomy, with a tolerable sward. From the skill of the *plowmen*, or good quality of the plows, or both combined, the work was done in a farmer-like manner, and on that *particular soil*, the work was so nearly alike that one would suppose the whole was turned by the same plow. On other soils, the result might have been different. In view of the above, the committee thought proper to award a volume each of the Society's Transactions to the several competitors, viz: Alfred Doe and J. L. Robinson & Co., Concord; and Pearson & Tarbell, Milford.

Best subsoil plow (no competition) to J. L. Robinson & Co., Concord; Diploma.

Best Cultivator, (improvement on,) C. H. Dana, West Lebanon, Vol. Transactions; second, J. L. Robinson, Concord, Diploma.

For improvement on "Independent Horse Rake," Diploma, to Reuben Matthews of Lee. The improvement consists in the hanging of the brake, and its more easy play, and the extending the teeth over the hubs of the wheels.

Horse Power Machine, entered by Josiah Turner of Sunapee, seemed to be a very strong, durable and efficient machine, calculated for two horses abreast; Transactions.

Thresher and Separator, for exhibition, by Turner & Sturoc of Sunapee. This, in some respects, seemed to possess advantages over other machines that have been in use among us. The manufacturers much regretted they had not the means for testing its power of threshing and cleaning grain; awarded a Diploma.

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CLASS II.

Wm. Patterson, South Merrimack, entered for premium a well made ox-cart and ox-wagon—to the first named a volume of Transactions; to the second, Diploma.

For the best Fanning Mill, Transactions, to Charles Choate, Nashua.

Hay Cutters, (of Macomber's patent,) manufactured by Smith & Chase of Weare—three sizes—efficient and durable machines; Transactions. Reuben Daniels of Woodstock, Vt., exhibited three sizes of cornstalk and hay cutters. They were on quite a different principle from Macombers, but appeared to be well adapted to converting *long* feed into a kind of horse mince-meat; Diploma.

C. H. Dana, West Lebanon, presented a hand-corn-planter, a simply constructed and cheap implement, (cost seventy-five cents,) and particularly adapted, in corn-planting, to those who cannot count *five;* Diploma.

D. M. Cummings, North Enfield, was awarded a Diploma for improvement in attaching the stale to the head of the rake by the use of a brass socket and screw.

Warren Wadleigh, Hill, entered for premium one dozen superbly finished axe-handles. Taking them "all in all," we thought them hard to beat.

W. W. Leighton, Manchester, exhibited neatly finished axes, that would match well with "Wadleigh's handles;" Diploma.

Hoes, by White & Eaton, Antrim—well worthy a Diploma.

Ox-yokes, by D. C. Rich, Milford, and Daniel W. Bill, Gilsum; Vol. Transactions to Mr. Rich—Diploma to Mr. Bill.

Diploma to E. L. Hacket, Manchester, for a paring machine., There were on exhibition some four or five different paring machines, but as the committee had no apples to experiment with, they were unable to practically decide upon their respective merits. Some of them displayed in their gearing a large amount of clock-work, and all exhibited a good degree of Yankee ingenuity. Only one was entered for premium, for which we awarded as above.

A Diploma was awarded to John McC. Hammond, Dunbarton, for half a dozen "Granite scythe rifles." They seem fully entitled to the patronage of the farmers of the Granite State. The dew of one night will not remove the gritty substance with which they are covered.

There were on exhibition some beautifully finished grass, grain and bush scythes, from the manufactory of Roby & Co., North Chelmsford, Mass.

Dennis & Varick, Manchester, liberally contributed to this department, from their Agricultural Warehouse, which added much to the interest of the occasion.

RECAPITULATION.

J. L. Robinson & Co., Concord, for plow,.....Transactions.
A. Doe, Concord, for plow, ... do
Pearson & Tarbell, Milford, for plow,..... do
J. L. Robinson & Co., Concord, for subsoil plow, ...Diploma.
C. H. Dana, West Lebanon, for best cultivator,...Transactions.
J. L. Robinson, for second best " .....Diploma.
Reuben Matthews, Lee, for horse rake,.....Diploma.
Josiah Turner, Sunapee, for horse power,.....Transactions.
Turner & Sturoc, Sunapee, for thresher and separator,.Diploma.
Wm. Patterson, South Merrimack, for ox-cart and wagon,.....Transactions and Diploma.

Charles Choate, Nashua, for fanning mill,.....Transactions.
Smith & Chase, Weare, for hay cutter,.....Transactions.
Reuben Daniels, Woodstock, Vt., for hay cutter, ...Diploma.
D. M. Cummings, North Enfield, for hay rake, ...Diploma.
C. H. Dana, West Lebanon, for corn planter,.....Diploma.
Warren Wadleigh, Hill, for axe-handles, ...Diploma.
W. W. Leighton, Manchester, for axes,.....Diploma.
White & Eaton, Antrim, for hoes, ...Diploma.
D. C. Rich, Milford, for ox-yoke, ...Transactions.
D. W. Bill, Gilsum, for ox-yoke,.....Diploma.
E. L. Hackett, Manchester, for paring machine,.....Diploma.

LEVI BARTLETT, for the committee.

BREAD.

JUDGES.—Josiah Stevens, Concord; J. A. Marsh, Litchfield; John Wadleigh, Meredith.

Mrs. Nancy L. Baker, Manchester, for best wheat bread, $4 00
Mrs. B. Hutchinson, Manchester, for second do Medal.
Mrs. J. B. Quimby, Manchester, for third do 2 00
Mrs. Isaac Morse, Haverhill, for fourth do Diploma.
Mrs. Isaac Morse, Haverhill, for best rye and Indian bread, 4 00
Herrick & Hartshorn, Manchester, bakers, for second do Medal.
Mrs. E. Barr, Bedford, for third do 2 00
Margaret F. Hartshorn, Manchester, for fourth do Diploma.

The committee recommend the following gratuities:—

Miss Mary M. Nichols, Haverhill, aged 14 years, for excellent wheat bread, ...Diploma.
Miss Sarah E. French, Bedford, aged 13 years, for brown bread,.....Diploma.
Mrs. Margaret Boyd, Derry, for good wheat bread,...Diploma.
Mary E. Plumer, Goffstown, for same.....Diploma.

JOSIAH STEVENS, for the committee.

BUTTER.

JUDGES.—Moody Hobbs, Pelham; Abr. Robertson, Manchester; Isaac Eastman, Concord.

Nineteen entries were made for the premiums offered by the

Society for this article, and twenty-one specimens presented for our inspection. Ten of the nineteen entries were by girls under twenty-one years of age. This fact, together with the consideration that the specimens offered by the *daughters* were, in all respects, equal, if not superior, to those presented by the *mothers*, was a gratifying indication that the race of good butter makers was not likely to "run out," at present, in this State.

A large proportion of these specimens were truly excellent, and by their golden color, sweet, savory odor, agreeable taste, and the tastefully neat appearance in which they were presented to our view, they reflected great credit upon the neatness, skill and taste of the fair dairy-women and dairy-girls of New Hampshire. Truth and candor, however, compel us to say that a few, very few, specimens were offered which, in our opinion, had better been kept away. They appealed very *strongly* to more than one of our senses; to the *taste* so salt that they might have done credit to the manufacture of that lady who was changed into a pillar of that useful article; challenging our respect for old age by the sensations they transmitted to our olfactory organs; demanding our admiration for their variegated colors of yellow and white—the effect of mingling butter and cheese curd. But of such vile stuff there was but little.

Among so many specimens that were really good, we found it no easy task to decide which was the best. But after a thorough examination and careful comparison we make the following awards:—

G. W. Keniston, Campton, for best, ... $6 00
Benjamin Walker, Boscawen, for second, ... Medal.
James Pearson, Lyndeborough, for third, ... Diploma.

The premiums to girls under twenty-one years of age we dispose of in the following manner:—

Miss Caroline M. Powers, Cornish, 15 years of age, for best, ... 1 doz. silver Tea Spoons.
Miss Emma E. Keniston, Campton, 14 years of age, for second, ... ½ doz. silver Tea Spoons.
Miss Julia A. Colby, Hampstead, aged 15 years, for third, ... Medal.
Miss Laura A. Dewey, Hanover, aged 17 years, ... Diploma.

Other specimens shown were well worthy a premium, and we regret that we did not have them to give. Among such, offered by matrons and maidens, we would make "honorable mention" of that of two young ladies who presented to us not only excellent butter, but beautiful instances of filial duty and affection. We allude to Miss Elizabeth Christy of New Boston, and Miss Mary M. Loud of Dalton—the former at the age of eighteen years, having for the three preceding years taken care of a sick mother and done all the work in a large family. The last named, Miss Loud, upon the death of her mother last spring, was called from the mills at Manchester, at the age of eighteen, to take charge of the domestic concerns of her widowed father. If her butter is a criterion by which to judge of the manner in which she discharges her duties, she does most faithfully perform them. We, if we had the power, would give to each of those young ladies a Diploma for their butter, and a Medal for their filial devotion of conduct.

Nearly all the applicants for premiums filed statements as to the process of making their butter, in conformity to the regulations of the Society. The statements of the successful competitors are annexed hereto. In one of the rivals, butter making, it seems, has created or caused an effusion of poetry. We are of the opinion, however, that his butter is superior to his poetry; but we hope he will continue to manufacture both.

It might have been expected by some that we would enter upon a disquisition as to the best mode or manner of making butter. We shall not attempt to do so any further than to recommend to all engaged in the business the consideration of the different statements accompanying this report. We would give the preference as to the manner of making, &c., to the statement of Mrs. Pearson of Lyndeborough. That statement expresses our views of butter making, completely.

Before we close this report, we feel it a duty to notice a practice which we consider a just cause of complaint from exhibitors. We mean the practice of individuals constituting themselves judges of all butter offered for premium. As soon as a box of butter is placed upon the exhibition shelves, some important per-

sonage approaches it with the gravity of a Turk, slowly removes the cover, thrusts his hands deep into the recesses of his breeches pocket draws thence his jack-knife all bedaubed with tobacco, perhaps, thrusts his knife into one of the golden balls, takes out a piece, tastes it, with a knowing expression of countenance, passes judgment oracularly upon it, leaves it uncovered and passes to the next specimen to renew the same operation there. He is followed up by a bustling personage, who calls herself a lady. For a knife she substitutes her thumb-nail, fresh, perchance, from a pilgrimage from her snuff box to her nasal protuberance, with which she scoops out a piece, conveys it to her mouth, and declares it unfit to eat, and scornfully passes on. These are succeeded by others; so that in a short time but a little of the original appearance is retained. No true lady, or real gentleman, of course, would be guilty of such, or similar practices. That many men, and women too, are thus guilty, is a notorious fact. We hope to see the habit abandoned, and people content themselves with *looking* at the butter offered at our Fairs in the future, unless they are authorized to *taste* it.

MOODY HOBBS, for the committee.

MRS. JAMES PEARSON'S STATEMENT.—I set my milk for butter in tin pans, but have no limited time for it to stand before taking off the cream, but vary according to the temperature of the atmosphere, making it my aim to take it off before the milk "changes," as the acid not only injuries the *quality* but lessens the *quantity;* and if suffered to remain, soon destroys it altogether.

I give my cream a thorough stirring once a day, and in quite warm weather stir it twice a day, that the milk which may chance to be taken with the cream may not gather in hard particles, which will not separate from the butter. We use the rocking churn, having found by experimenting on a variety of other kinds, that none of them except the dash churn will produce butter of *equal color* and *quality*, although some produce a greater quantity. A churn with any part of its apparatus acting on the cream or butter similar to a knife in spreading butter on bread,

will change its color from a golden hue to a silver grey, and prevent its being "waxy." When the butter has fully come, I draw off the butter.milk and pour in a pail of cold water and churn it a few moments.

I prepare my hands by washing them well in warm soap-suds, (*not hot*,) then hold them a short time in cold water, then rub them thoroughly with fine salt, then rinse in cold water, which will prevent the butter from adhering to them in the least. I now take the butter into a wooden tray and rinse out the buttermilk with cold water, having found by dividing a lot that water *does not* cause the butter to become white or rancid, but it prevents too much working with the hand as I break it open carefully in the water. When well rinsed I press it together, mixing in one and one-fourth ounces of salt to every pound of butter. When it has stood in a cool place twenty-four hours I press out all the moisture, which may be done with the hands, then take about a pound at a time into wooden spatters and beat and press it until it is dry and solid. Then press it in a jar for use.

Mrs. JAMES PEARSON.

Lyndeborough, Sept., 1853.

Mrs. Keniston's Statement.—As soon as the milk is brought from the cows I strain it into earthern pans and allow it to stand about forty-eight hours before taking off the cream. I keep the cream in stone pots, and stir it twice a day until it is churned. I set it in a dark place to prevent insects getting into it. I never cover it over; I think it makes the top of the cream bitter, and injures the butter. When taken from the churn it is salted immediately, allowing a pound of salt to fourteen pounds of butter. I then set it in a cool place until the next day, when I work it over thoroughly, adding a very small quantity of salt, and make into balls. Mrs. GEORGE W. KENISTON.

Campton, Sept. 22, 1853.

Miss Dewey's Statement.—My butter is made in the following manner: The milk is taken from two cows, which is allowed to stand twenty-four hours, when the state of the weather will permit. The cream is taken off when perfectly sweet, and

churned once in three or four days. After the butter-milk is drawn from the butter it is washed in cold spring water, and is worked over on the two succeeding days; the third day it is again worked and lumped. To one pound of butter is added an ounce of salt. The pans are kept clean and neat. After washing them they are scalded and dried thoroughly. I was seventeen years of age last February.

LAURA A. DEWEY.

Hanover, Sept. 22, 1853.

CHEESE.

JUDGES.—H. A. Daniels, Milford; William Tenney, Hanover; William F. Jones, Durham.

The judges on Cheese have attended to their duties, and respectfully report that while they regret that from the whole Granite State but four entries of Cheese were made, they must pronounce the specimens very creditable to the contributors. Although the judges could not learn that the rules were strictly complied with, but in one case, still, in order to encourage a larger display in future, they award to—

N. Hurlburt, Hanover, the first premium, for best 50 lbs. old cheese, ... $6 00
Asa Huntington, Hanover, the second premium, for 50 lbs. old cheese, ... 5 00
Benj. Walker, Boscawen, the first premium, for best 50 lbs. new cheese, ... 6 00
Asa Huntington, Hanover, the second premium, for 50 lbs. new cheese, ... 5 00
George T. Sanborn, West Boscawen, for third best old cheese, ... Diploma.

STATEMENT.—Cheese two years old. Rennet put into the milk sufficient to bring it in about one-half or three-fourths of an hour, so that it will cleave from the tub. I then cut it up with a cheese-knife, let it stand until it begins to settle. I then put in my hand and break it up quite fine, then let it settle, and dip it out into a basket, let it drain thoroughly, then scald it with

whey, keep cutting it with a knife while scalding, then dip it back into the basket, drain out the whey and salt it to suit the taste, put into the press while warm, press two days. I take out and turn it into a dry cloth twice during the time, then take out and butter over daily; when two or three weeks old, wind with cloth, after which the dressing is put on to the cloth; keep through the winter without freezing.

Mrs. N. HURLBURT.

REMARKS.—The judges were much pleased with the specimen of cheese accompanying the above statement, and cannot refrain from calling the attention of the agricultural community to the great care and attention manifested in the preparation of the curd, and especially to recommend the scalding process as beneficial in one or two respects at least. First, it evidently has a tendency to correct any strong and unpleasant taste acquired from the milk, and second, it may prevent the flow of white whey, or the juice of the curd, when first put in the press, by hardening the caseum or cheesy matter by the application of heat. Few persons can have failed to notice, when the summer herbage is very rank and abundant, a certain strong taste to milk, and often, also, when the grass is partially killed by frosts in autumn, or when cows are bountifully fed with roots, especially turnips. This taste must manifestly have an influence upon the curd, and will undoubtedly be counteracted in a great measure by scalding it. Another item in the above statement is worthy of note, and that is the time occupied in the curdling of the milk. Many dairy women are liable to hurry this part of the operation, and in their impatience, put in too much rennet, in order to curdle it quickly, imparting a strong taste in this way, and making the cheese spongy and porous. Composed as the rennet is of animal matter, too much care cannot be bestowed upon its preservation, that it be sweet and clean—well preserved with salt, that it do not become tainted, and thus generate gases to puff up the cheese. The best cheese is that of a close and fine grain and free from sponginess.

But with all the care of the most accomplished dairy woman, there are other prerequisites to the production of good cheese,

and also of sweet and palatable butter. Most farmers seem to take it for granted that milk is milk, from whatever source it is procured or however produced. There never was a greater mistake. It is true that different cows kept upon the same food will produce different qualities of milk; still it does not follow that any and all kinds of food are fit and proper for milch cows, or that the milk from the cows kept upon distillery slops in the city of New York will be as sweet and rich as that from cows kept in the clover fields of Goshen. To produce good milk, it is necessary that cows should be kept upon good food, and enough of it; and hence the importance of improving our worn out grazing lands. Most of our pastures in New Hampshire are seldom plowed or re-seeded, and consequently the cultivated grasses have mostly become extinct, and their place supplied with wiry June grass, berry bushes, laurel and moss; and as there seems a monomania among farmers to keep a great many cows, the pastures are consequently overstocked, and the cattle are so near starved that they are obliged to resort to bushes, thistles and weeds, or any thing that comes in their way; hence to expect the production of sweet and rich milk from such a source, is much like looking for "grapes from thorns or figs from thistles." Farmers cannot expect to vie with their brethren of Vermont and New York in producing rich butter and cheese, until more attention is paid to grazing lands. Most of our pastures, from long grazing, have become nearly destitute of lime, and should be supplied by the application of ground plaster, or what is still better, a mixture of ground bones and plaster, followed with a liberal sprinkling of grass seed, and harrowed in with a very sharp toothed harrow. This process applies more particularly to rough lands that cannot be plowed; but when they can be, they should be, and treated as other plowed fields. The time is not far distant when farmers will find it for their interest to devote better land to grazing, and when all their fields will, after once or twice mowing, be turned to pasture for a year or two prior to plowing again. This course will ensure better food for milch cows, and more of it, and will be a jubilee of jubilees to poor half starved horn cattle. Upon no point are farmers so repre-

hensible as in their treatment of milch cows in summer, half starving them oftentimes, and then complaining that they can make but little butter and cheese. The saying cannot be too often reiterated, that "one cow well kept is worth more than two half kept," and the use of capital and taxes on the second entirely saved. When will all our farmers learn that they may be "penny wise and pound foolish," in the treatment of their stock?

H. A. DANIELS, for the committee.

Milford, Dec. 17, 1853.

HONEY.

JUDGES.—John Peavey, Tuftonborough; Bartlett Hill, Meredith; J. L. Couch, Boscawen.

There was but one lot of Maple Sugar entered for a premium; but the committee were unanimous in the opinion that said Sugar was an article fully worthy of the first premium offered by the Society. They therefore award to D. W. Bill of Gilsum the first premium, of three dollars, on Maple Sugar.

The committee would further report that there was but one lot of Honey presented for a premium, and that was in the hive, well defended by a large swarm of bees. The committee had anticipated much pleasure in examining the article, but after deliberate consultation they came to the conclusion not to make war with such enemies. Said honey was not entered agreeably to the rules of the Society, but was entered as one hive of bees, by Mr. Joshua Burns of Goffstown. The committee were fully of the opinion that Mr. Burns was justly entitled to the first premium, of three dollars, for the best twenty pounds of Honey, as there evidently was some sixty or seventy pounds of honey in the hive.

D. W. Bill, Gilsum, for best 20 lbs. Maple Sugar, ...$3 00
Joshua Burns, Goffstown, for best 20 lbs. Honey,..... 3 00

JOHN PEAVEY, for the committee.

DOMESTIC MANUFACTURES.

JUDGES.—E. N. Fuller, Portsmouth; B. F. Cutter, Pelham; Samuel Coffin, Concord.

George T. Sanborn, Boscawen, for woolen blankets,.....$4 00
J. K. Kelsea, Lisbon, for same,.....Diploma.
Miss L. Wilkinson, Gilford, for flannel,.....Diploma.
J. K. Kelsea, Lisbon, for woolen cloth,.....2 00
H. T. M. & M. Adams, Manchester, for listing carpet, Diploma.
A. Folsom, Dover, for oil cloth carpet,.....Diploma.
Miss L. Wilkinson, Gilford, for woolen yarn,.....2 00
Mrs. Asa Huntington, Hanover, for same,.....Diploma.
S. M. Fellows, Hanover, for woolen stockings,.....2 00
Miss Delia Aspinwall, for same,.....Diploma.
Mrs. Frost, Madison, 100 years old, for woolen socks, Diploma.
Mrs. Wm. Caldwell, Dunbarton, for worsted stockings,....2 00
Mrs. E. Emerson, Manchester, for same,.....Diploma.
Mrs. Sanborn, Gilmanton, for same,.....Diploma.
J. P. Kimball, Canterbury, for woolen gloves and mittens,..2 00
William Patten, Manchester, for same,.....Diploma.
Miss E. J. Plastridge, East Lebanon, for silk stockings,...2 00
Miss Julia A. Beard, Nashua, for same,.....Diploma.
Mrs. T. A. Harraden, Concord, for cotton stockings,.....2 00
Mrs. M. D. Barnard, Bedford, for same,.....Diploma.

The committee recommend the following complimentary awards:

Mrs. John Adams, Manchester, for eighteen pieces home wrought old fashioned damask,.....Transactions.
George W. Shepherd, Holderness, for table linen,....Diploma.
Mrs. J. E. Bunker, Manchester, for rug carpet,.....Diploma.
Mrs. D. W. Fling, Manchester, for matched and braided mats,.....Diploma.
Mrs. G. W. Johnson, Enfield, for braided rugs,.....Diploma.
Mrs. Susannah Whittaker, Manchester, for same,.....Diploma.
Mrs. J. Smith, Brentwood, for yarn rug,.....Diploma.
Mrs. J. C. Lyford, Manchester, for rag rug,.....Diploma.
Miss J. M. French, Henniker, for same,.....Diploma.
Mrs. E. C. Foster, Manchester, for braided rug,.....Diploma.
Mrs. James Sleeper, Sandown, for woolen shawl,.....Diploma.
Mrs. Sarah Bisbee, Haverhill, for under-shirt,.....Diploma.
Mrs. M. S. Woods, Henniker, for bed-spread,.....Diploma.

E. N. FULLER, for the committee.

CORPORATION MANUFACTURES.

JUDGES.—H. J. French, Gilford; James Peverly, Concord; Matthew Gault, Hooksett.

The committee on Corporation Manufactures award the first premium to Milan Harris of Harrisville, for one piece of doeskin, ... $6 00
C. H. Stevens, Manchester, for four sets of harness frames, ... Medal.
Amoskeag New Mills, Manchester, for two pieces of superior drills, the first premium, ... 5 00
Shaker Mill, Enfield, for one piece of superior flannel, .. Medal.
Great Falls Manf'g Co., for six pieces bleached sheeting, the first premium, ... 5 00
Noone & Cochran, Peterborough, for two pieces superior roller cloth, ... Medal.
Portsmouth Steam Factory, for one piece organdies, one piece lawn, ... Medal.

H. J. FRENCH, for the committee.

MILLINERY.

JUDGES. — A. B. Page, Manchester; Gustine Marshall, Nashua; James Hazelton, Concord, and their ladies.

P. K. Chandler, Manchester, best shirred bonnet, ... $6 00
C. A. Putney, Manchester, second, ... Medal.
C. A. Putney, Manchester, best trimmed straw bonnet, ... 3 00
P. K. Chandler, Manchester, second, ... Diploma.
Mrs. Abraham Robertson, Manchester, thread and crotchet bonnet, ... 3 00

A. B. PAGE, for the committee.

NEEDLEWORK.

JUDGES.—J. C. Moulton and lady, Gilford; C. E. Potter and lady, Manchester; H. J. French and lady, Meredith Bridge.

The Whiton Prize, for Patching and Darning, was distributed to Miss Julia A. Beard, Nashua, for best darning, three specimens, ... $5 00

Mrs. B. Hutchinson, Manchester, for second, ... 3 00
Mrs. S. T. Chase, Hanover, for best patching, ... 5 00
Miss Martha E. Chapman, Cornish, for second,..... 3 00
To girls under 14 years old—
Anna N. Clark, Manchester, for best darning, ... 2 00
Miss S. M. Fellows, Hanover, for second,.....Diploma.
Miss S. M. Fellows, Hanover, for best patching,..... 2 00
Second not awarded.
Harriet D. Gay, Fitzwilliam, for best variety of needle-work, ... 5 00
Mrs. D. S. Burnham, Milford, for second,..... 3 00
Mrs. A. R. S. Collins, Manchester, for third,.....Diploma.
Ann March, Manchester, for best counterpane, ... 2 00
Miss Eliza J. Moulton, Manchester, for best wrought chair, 2 00
Miss Abby C. Straw, for best embroidery, ... 3 00
The judges recommend extra awards to Miss M. A. Messer, Manchester, for a wrought vest,.....Diploma.
A. P. Gilson, Manchester, for shirts and collars, ...Diploma.

They also recommend that Diplomas be awarded to M. A. Currier, Manchester; Mrs. J. Whittemore, Nashua; Abby C. Stevens; Miss Lyford, Meredith, and R. M. Smith, Manchester.

J. C. MOULTON, for the committee.

TAILORS' WORK.

JUDGES.—Stephen Brown, Concord; Thomas Neal, Holderness; Stephen Smith, Mason.

The committee on Tailors' Work report that they have attended to the duty assigned them, as faithfully as the time allowed them would permit. The labors of this committee should be considered, inasmuch as they have travelled fore and aft in search of some article that would come within the scope of their duty; but being unsuccessful in the attempt, they are compelled to express their regret that so little interest should be manifested in this important mechanical art. It was said in olden times that "nine tailors made a man," but with the improvements of this age, it is presumed that each tailor is a man of himself; and if in the future the craft in the Granite State do not claim a

standing with their brother mechanics, it will be necessary to return to the old *Dublin platform*, humiliating as it may be. It is to be hoped that at the next annual fair this branch of manufactures will be well represented, which would contribute much to the interest of the association. Respectfully submitted,

STEPHEN BROWN, for the committee.

SILVER WARE.

JUDGES.—G. G. Fogg, Concord, John H. Goodale, Manchester; P. C. Cheney, Peterborough.

H. H. Ladd, Manchester, for best exhibition of silver ware, $5 00
Dunlap & Parker, Manchester, manufactured ware,...Diploma.
Claremont Cutlery Company, for best exhibition of cutlery, 10 00
Dix & Elliott, Manchester, for best exhibition of China ware,.....Diploma.
H. H. F. Mecum, Manchester, for gold jewelry manufactured by himself,.....Diploma.

G. G. FOGG, for the committee.

MACHINERY.

JUDGES.—E. A. Straw, Manchester; Onslow Stearns, Lebanon; Josiah Stevens, jr., Concord.

O. W. Bayley, Manchester, agent of Amoskeag Machine Shop, for locomotive engine, instead of $20, the premimium offered,.....Medal.
Titus H. Russell, Woodstock, Vt., for saw-mill head blocks,.....Diploma.
C. W. Houston, Goffstown, for blind shade planing machine,.....Diploma.
D. M. Cummings, Enfield, for blind machinery,.....Diploma.
Dadmum & Cummings, Concord, for mill dressing machine,.....Diploma.
David D. Stanyan, Wentworth, for shingle and lathe machine,.....Diploma.
George Wells, Sandown, for pumps,.....Diploma.
E. & T. Fairbanks & Co., St. Johnsbury, Vt., for scales, Diploma.

E. A. STRAW, for the committee.

CARRIAGES.

JUDGES.—G. H. Dodge, Hampton Falls; Caleb Parker, Concord; J. M. Tyler, Pelham.

Orrin Head, Exeter, best chaise,.....$7 00
George Kenney, Milford, for second,.....Transactions.
C. B. Haynes, Candia, best top buggy wagon,.....7 00
Orrin Head, Exeter, best open buggy,.....7 00
George Kenney, Milford, for second,.....Transactions.
Newell Tilton, Meredith Bridge, for third, ...Diploma.
George Kenney, Milford, best two-horse carriage,.....8 00
George Kenney, Milford, express wagon,.....Diploma.

GEO. H. DODGE, for the committee.

STOVES.

JUDGES.—Richard Boylston, Amherst; J. C. Blair, Campton; E. S. Nutter, Barnstead.

Hartshorn & Tuttle, Amherst, for best cooking stove,....$5 00
Hartshorn, Darling & Co., Manchester, for second, ...Diploma.
Hartshorn, Darling & Co., Manchester, for best parlor stove, 5 00
Dudley & Parker, Manchester, for second,.....Diploma.
Pratt & Bosworth, Milford, for a variety of stoves,....Diploma.
C. M. Hubbard & Co., Manchester, for a variety of stoves,.....Diploma.
Hartshorn, Darling & Co., Manchester, for house furnace,.....Diploma.

RICHARD BOYLSTON, for the committee.

COPPER AND TIN WORK AND BLACKSMITHING.

JUDGES.—Imri Woods, Henniker; M. Downer, Warner; Solomon Penderghast, Durham.

Hartshorn, Darling & Co., Manchester, for copper work and ware,.....$5 00
Dudley & Parker, Manchester, for tin ware, ...3 00
Hartshorn, Darling & Co., Manchester, for second,....Diploma.
S. P. Duntley, Manchester, iron work,.....3 00

J. C. Morrison, St. Johnsbury, Vt., piece of forging,..Diploma.
Hartshorn, Darling & Co., Manchester, brass castings,.Diploma.
Simeon Heywood, Claremont, brass wagon cap,.....Diploma.
J. Dustin, Nashua, best polishing irons, ...Transactions.

IMRI WOODS, for the committee.

BOOTS, SHOES AND LEATHER.

JUDGES.—Enoch Marsh, Pelham; Josiah Clark, Manchester; Joseph Noyes, Plaistow.

Gove & Harris, Concord, best exhibition of ladies boots and shoes, ...$3 00
Samuel Dudley, Candia, for second,.....Diploma.
Josiah Clark, Manchester, best calf boots, single pair, ...3 00
J. Griffeth, Alexandria, for second,.....Diploma.
Mills & Lewis, Milford, best exhibition of boots and shoes,.5 00
Mitchell & Questrom, Manchester, for second,.....Diploma.
E. C. Foster, Manchester, for best stock and workmanship, of belting and rolls,.....Diploma.
P. Stark & Co., Manchester, for greatest variety of belting and rolls,.....Diploma.
J. B. Chase, Manchester, for belt leather, calf and sheep roll leather, ...Diploma.
J. S. Osgood, Hopkinton, for best upper leather,.....Diploma.
J. A. Starrett, Mont Vernon, for calf skins,.....Diploma.

JOSIAH CLARK, for the committee.

COOPER'S WORK, WOODEN WARE, &c.

JUDGES.—James Whitcher, Hooksett; S. J. Dennis, Manchester; William Warren, Hudson.

Jas. Whitcher, Hooksett, for best pails, ...$2 00
" " for tubs,.....2 00
Luke Baldwin, Brookline, for best barrels,.....3 00
Porter Blanchard & Co., Concord, for best churns,.Transactions.
Wm. Warren, Nashua, for best planes, Diploma and Transactions.
James Whitcher, Hooksett, for best brooms,.....Transactions.
D. S. Dutton, Hooksett, for second,.....Diploma.
J. Dustin, Nashua, for best rolling machine,.....Diploma.

S. J. DENNIS, for the committee.

HARNESSES, &c.

JUDGES.—Charles A. Farnum, Contoocookville; J. O. Wiggin, Stratham; W. D. Meserve, Lee.

Orrin Head, Exeter, for best chaise harness,.....$7 00
Norman Fuller, Nashua, for second,.....Medal.
Oliver Greeley, Manchester, for third,.....Diploma.
" " " for trunks,.....3 00
" " " for valises,.....2 00

C. A. FARNUM, for the committee.

FURNITURE.

JUDGES.—J. G. Cilley, Manchester; J. W. Morrill, Epping; R. K. Parker, Meredith.

Mrs. J. B. McCrillis, Manchester, what-not, pellis work,.Medal.
George Kimball, Mason, Grecian chairs,.....Medal.
A. Burton, Manchester, sofa bed,.....Medal.
T. W. Currier, Lawrence, Mass., rocking settee and crib, Medal.
Mrs. J. Buckminster, Manchester, ottoman,.....Medal.
Freeman Tupper, Nashua, bedstead,.....Medal.

J. W. MORRILL, for the committee.

HATS, CAPS, FURS, &c.

JUDGES.—Geo. W. Blodgett, Claremont; L. G. Miner, Meredith; Ingalls Bunker, New Market.

No entries.

PAPER, PRINTING AND BINDING.

JUDGES.—Asa McFarland, Concord; Charles F. Livingston, Manchester; B. B. Haseltine, Pembroke.

Wm. H. Fisk, Manchester, for binding,.....$3 00
McFarland & Jenks, Concord, for best book printing,.....3 00

Abbott, Jenks & Co., Manchester, for best job printing,....3 00
" " " for copper-plate printing, ...Diploma.

The judges recommend to—

McColley & Hale, Manchester, for display of paper hanging, ...Diploma.
Bethuel Farley, Marlow, for writing ink,.....Diploma.

B. B. HASELTINE, for the committee.

PLOWING—WITH HORSES.

JUDGES.—Levi Bartlett, Warner; B. F. Cutter, Pelham; John O. Cilley, Nottingham.

The committee on plowing with horses report that four competitors entered the field, with a pair of horses each. Azel Wilder of Keene used Ruggles, Nourse & Mason's double or Michigan sod and subsoil plow. This plow with its forward mould-board cuts and inverts some three or four inches in depth of the sward, and the rear one throws up the subsoil, which in a very friable state is evenly spread over the inverted sod, and the land is left in fine condition for the harrow and the reception of the seed. For light pine plain land, and alluvial soils, and in fact all other ground free from stones, roots, &c., the committee were of the opinion that it was the "plow of plows," but they had their doubts about its being a suitable implement for the rocky, hill lands of the Granite State. Mr. Wilder was twenty-six minutes in plowing his eighth of an acre.

Gen. W. P. Riddle of Manchester entered the list with a pair of white horses, one of which was twenty-six and the other twenty-eight years old. The way in which these *old chaps* came to "the right about face" at the end of the furrows, without long reins or driver, evidently showed they had been well *drilled* under the discipline of the General, during the past quarter of a century, as they finished their task in nineteen minutes, with Doe's No. 5 plow, with a "sharp edged revolving cutter."

Gen. R. has kept his horses for the past three years on the *daily ration* of four quarts of Indian meal and three pecks of

cut hay to each horse; on this allowance it requires about one bushel of corn per week, or fifty-two bushels per year, and one ton of the best quality of English hay, for feeding a horse annually. Corn at one dollar per bushel, and hay at thirteen dollars per ton, makes the cost of feeding a horse on Gen. R.'s plan amount to sixty-five dollars a year.

Abraham Burbank of Boscawen, with a plow of the same pattern of Gen. Riddle's, with a span of horses six and seven years of age, with driver and plowman, plowed his land in the same time, or in nineteen minutes. His work was about equal to Gen. R.'s, but a driver very much enhances the cost of plowing, and somewhat influenced the committee in their award.

Reuben W. Currier of East Kingston was the first to finish his land, (time eighteen minutes.) But his land was not so well plowed, in the opinion of the committee, as was that of the other competitors. This we presume was owing to a badly constructed plow for the land upon which it was used. We thought its form was much better calculated for stubble ground than for green sward. We unanimously award as follows:—

Azel Wilder, Keene, for first premium,.....$10 00
W. P. Riddle, Manchester, for second,.....8 00
A. Burbank, Boscawen, for third,.....5 00
R. W. Currier, East Kingston, for fourth,.....Medal.

LEVI BARTLETT, for the committee.

PLOWING—WITH OXEN.

JUDGES.—John Preston, New Ipswich; Reuben Goodwin, Concord; J. B. Cilley, South Deerfield.

D. S. Willard, Keene, for first premium,.....$10 00
Harvey Carter, Boscawen, for second,.....8 00
C. M. Burbank, Boscawen, for third,.....5 00
M. S. Buckminster, Roxbury, for fourth,.....Medal.

JOHN PRESTON, for the committee.

VEGETABLES.

JUDGES.—J. M. Rowell, Manchester; C. S. Fisher, Goffstown; D. S. Ingalls, Hanover.

Solomon Tobie, for carrots, ... $1 00
Charles A. Hall, Manchester, for beets, ... 1 00
Cyrus T. Lane, Candia, for onions, ... 1 00
Solomon Tobie, Manchester, for blue cabbage, ... 1 00
Peter Mitchell, Manchester, for tomatoes, ... 1 00
John Pattee, Goffstown, for sweet potatoes, ... 1 00
Peter Mitchell, Manchester, for squashes, ... 1 00
James Nutt, Manchester, for pumpkins, ... 1 00
W. P. Riddle, Manchester, for yellow corn, ... 1 00
Jos. Prescott, Manchester, for sweet corn, ... 1 00
E. F. Gove, Weare, for table potatoes, ... 1 00

The committee recommend awards to—

James Walker, Manchester, for parsnips, ... 1 00
Cyrus T. Lane, Candia, for rutabagas, ... 1 00

JOS. M. ROWELL, for the committee.

FRUIT AND FRUIT TREES.

JUDGES.—A. W. Haven, Portsmouth; S. F. Learnard, Chester; Jos. B. Walker, Concord.

P. Mitchell, Manchester, for best cranberries, ... $3 00
Isaac Whittemore, Manchester, for second, ... Diploma.
G. F. Senter, Windham, for best peaches, ... 3 00
D. Clement, Hudson, for second, ... 2 00
John A. Plumer, Londonderry, for third, ... Diploma.
H. J. French, Meredith Bridge, for best apples, ... 4 00
David Clement, Hudson, for second, ... 3 00
S. C. Lyford, Meredith, for third, ... Diploma.
Andrew Wiggin, Stratham, for best pears, ... 4 00
H. J. French, Meredith Bridge, for second, ... 3 00
E. Eastman, Gilmanton, for third, ... Diploma.
H. Putnam, Hampstead, for best quinces, ... 2 00
Robert Kennedy, jr., Goffstown, for second, ... 1 00
Charles Melendy, Amherst, for third, ... Diploma.
J. T. Coffin, Meredith, for best grapes, ... 1 00
H. J. French, Meredith Bridge, for second, ... Diploma.
Stilman Hutchinson, Milford, for best melons, ... 1 00

John H. Roberts, Rollinsford, for second,.....Diploma.
A. &. J. O. Wiggin, Stratham, for best fruit trees—nursery, 7 00
Cyrus T. Lane, Candia, for second,.....Transactions.
Charles Melendy, Amherst, for great variety of apples, Diploma.
D. A. Bunton, Manchester, for specimen of Duchess pears, ...Diploma.
Thomas Goldsmith, Dover, for specimens of Bartlett pears,.....Diploma.
Abram Brigham, Manchester, for Isabella grapes, ...Diploma.
E. M. Bissell, Orford, for bulbous roots, ...Diploma.

The committee commend the varieties of fruit presented by Messrs. Putnam and Lake, from Massachusetts.

Two of the judges decide that the pears presented by A. W. Haven, Esq., of Portsmouth, were entitled to the first premium; but Mr. Haven being on the committee, refused to receive any award.

S. F. LEARNARD, for the committee.

FARM BUILDINGS, BRIDGES, &c.

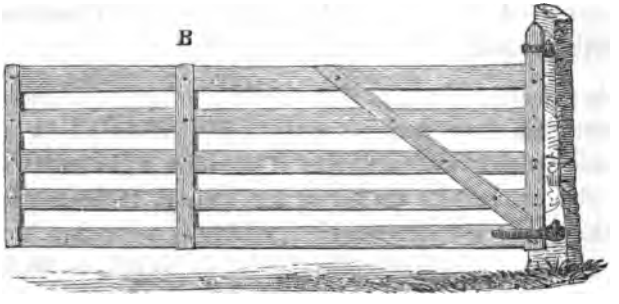
JUDGES.—A. G. Comings, Mason; H. Childs, Henniker; E. L. Davis, Enfield.

It is a matter of regret that a subject of such importance as the best plan for a farm-house, barn and out-buildings, should not have received such a degree of attention as to have secured some plan or plans for the use of the society, to be carried before the public through the next volume of their Transactions. It is a subject of great importance to the farmer to know how to secure the most advantages, and at the least expense. Four plans for a farm-yard gate were submitted; one by Mr. S. Gerrish of Northfield, and one by Mr. David Clement of Hudson. The one presented by Mr. Gerrish consisted of a sliding gate, resting upon a roller at the back end of it, which roller was sustained by a strong rod of iron running from the back post to another post at a sufficient distance to allow the gate's length upon it. The forward end of the gate was sustained upon a rod overhead, running across the gateway, by a roller in the top

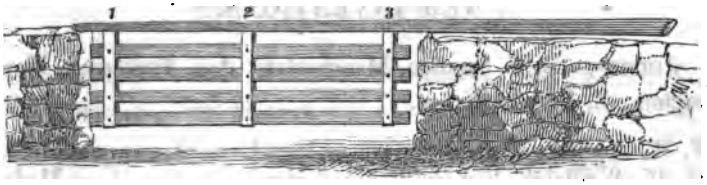
of the head end of the gate. The rod upon which the back end of the gate rested its roller was designed to be one foot or more from the ground, and the rod over the gate might be any height necessary, either for a large or small gate. A child would be able to open the gate. A small hasp to secure it was a sufficient fastening.

The model presented by Mr. David Clement consisted of two gates, so constructed that by raising the centre, or the two heads of the two gates, the four bars or rails of each of the gates would fall back upon the post in the same manner as the handle of a lady's fan, and the head ends also fold in the same manner on the head-piece of the gate, and all stand up with the firm posts at the side of the gateway.

Both of these plans are worthy of attention, but an examination of the models has caused a preference for the one presented by Mr. Gerrish. Mr. Asahel Smith of Hanover presented two plans for a gate, a full representation of which, by engravings, accompanies this report, with an explanation, by Mr. Smith, of both plans.



Specification for a Yard Gate.—Let the bar-tree be of good timber, 4 or 5 inches square, into which tenon the bars and make them fast. The brace, to be 2 by 3 inches and halved into the bars, with a foot inserted into the bar-tree. The bars are supported by an upright, (B) at one-third the length of the gate. The improvement claimed is the manner of fixing the brace, which is effectual in preventing the gate from sagging in its use for more than 18 years.



Farm Gate.—The uprights, 1, 2 and 3, are double, receiving the bars fastened by a screw bolt, and are tenoned into a horizontal timber, long enough, by the addition of a small weight, to balance the gate. The improvements claimed are, the method of fastening the bars between the uprights, and fitting the gate to a stone wall, as shown by the plan.

The advantages, for a location where deep snows are common, are in favor of the plan of Mr. Gerrish; and for cheapness of construction, the plans of Mr. Smith have their advantages. Both are good plans for gates.

The plan of Mr. Gerrish seems entitled to the first recommendation, in view of all the circumstances affecting the operation of farm gates in this State; and those of Mr. Smith the second, while for a different latitude the order should be reversed.

A plan of a farm journal, by Mr. Wm. D. Locke, of Fitzwilliam, came under inspection. As the committee had no authority to award any premium, they can only recommend it to the approbation it deserves.

S. Gerrish, Northfield, best plan for farm gate, ... $3 00
Asahel Smith, Hanover, for second, ... Diploma.

A. G. COMINGS, for the committee.

ESSAYS.

JUDGES.—H. F. French, Exeter; Asa P. Cate, Northfield; John S. Woodman, Hanover.

The committee examined six essays, of which the Executive Committee decided to accept only three, which appear in this volume.

NEW INVENTIONS.

JUDGES.—S. F. Stanton, Manchester; Jas. Pickering, Newington; Z. Breed, Weare.

J. W. Johnson, Enfield, for power loom harness, ...Medal.
G. W. Wadleigh, Fisherville, wood vise,.....Medal.
George Richards, Goffstown, for fly trap, ...Diploma.
J. L. Robinson & Co., Concord, reversed diamond cut plow, ...Diploma.
P. Blanchard & Co., Concord, for shoemakers' bench,..Diploma.
David Clement, Derry, farm gate,.....Transactions.

Z. BREED, for the committee.

DAGUERREOTYPES, PAINTINGS, &c.

JUDGES.—Daniel Clark, T. R. Crosby and B. P. Cilley.

T. Converse, Concord, for engraved wood work,.....Medal.
F. A. Brown, Manchester, for daguerreotype groups,....Medal.
Clara Bell Morrison, 9 years old, St. Johnsbury, Vt., for oil painting, ...Medal.
H. Jones, Hillsborough, pen drawing,.....Medal.
T. P. Moses, Portsmouth, landscape painting, ...Medal.
Miss C. A. Shattuck, Nashua, pencil map North America, Medal.
George E. Jenks, Concord, for oil painting, ...Diploma.
Miss S. E. Yeaton, Manchester, picture and frame,...Diploma.
H. D. W. Moulton, Manchester, daguerreotypes, ...Diploma.
Mrs. Wm. C. Osgood, Pittsfield, picture frame, ...Diploma.
C. F. Barrett, Concord, for picture frame, ...Diploma.
F. S. Robinson, Sanbornton, picture in water colors,...Diploma.
Miss Mary W. Bell, Manchester, water color paintings, Diploma.
Clara J. Straw, Manchester, head in crayon, ...Diploma.
Miss S. B. Clarke, Manchester, pencil and crayon drawing, ...Diploma.
Miss H. M. Hartwell, Manchester, worsted picture,...Diploma.
A. P. Shattuck, Manchester, specimens of drawing,...Diploma.
Miss Laura Slade, Manchester, oil painting,.....Diploma.
Miss M. E. Potter, Concord, crayon drawing,.....Diploma.
Mrs. Curtis, Pittsfield, picture frame, ...Diploma.
Augusta Currier, Manchester, crayon drawing,.....Diploma.

T. R. CROSBY, for the committee.

DENTISTRY, DRUGS, &c.

JUDGES.—Wm. D. Buck, D. S. Palmer, Manchester; Geo. W. Kittredge, New Market.

Robertson & Parker, Manchester, for specimens of plate work, &c., ...Diploma.
Wm. F. Chamberlain, Manchester, for the same,.....Diploma.
D. K. Boutelle, Manchester, case of artificial teeth, Transactions.
U. K. Mayo, Boston, for exhibition of dentistry,.....Diploma.

W. D. BUCK, for the committee.

MISCELLANEOUS.

JUDGES.—Thomas Merrill, Enfield; A. C. Cochran, Hancock; H. W. Weeks, Holderness.

R. E. Denning, Hollis, shell monument, ...Transactions.
Mrs. Hannah B. Carter, Warner, card box, ...Diploma.
George W. Shepherd, Holderness, family record,..Transactions.
W. R. Benton, Lebanon, birds and cage, ...Transactions.
G. B. Fogg, Manchester, case pistols, &c.,.....Diploma.
F. B. Johnson, Manchester, hair work, ...Diploma.
Foster & Felt, Keene, Æolians,.....Diploma and Transactions.
L. B. Sawyer, Manchester, shell monument,.....Diploma.
Mrs. D. W. Fling, Manchester, artificial trees of fancy articles,.....Diploma.
J. H. Diman, Stratham, boquet, ...Diploma.
C. D. Horr, Manchester, grass tree, ...Diploma.
J. A. Gilbreth, Manchester, for umbrellas, ...Diploma.
C. M. Putney, Manchester, for confection, ...Diploma.
L. L. Swett, Pittsfield, for swifts, box and spool stand,.Diploma.
S. F. Dodge, Sunapee, for specimen of graining,.....Diploma.
Mrs. E. J. Hall, Manchester, for variety of wines,....Diploma.
Mrs. Nancy L. Baker, Manchester, for tomato sauce and dried pumpkin,.....Diploma.
Z. J. Wiggin, Stratham, for wine,.....Transactions.
Liscomb & Dearborn, Concord, for piano, Transactions and Diploma.

THOMAS MERRILL, for the committee.

ROOT AND GRASS CROPS.

JUDGES.—C. E. Potter, Manchester; P. M. Rossiter, Milford; Joel Baker, Lebanon.

The committee of the New Hampshire Agricultural Society, upon root and grass crops, would report as follows:

ON HOPS.

They would award the first premium of $5 00 to Gen. Wm. P. Riddle, of Manchester. To William Riley, of Hooksett, the second premium, a Diploma.

The committee would suggest that in their opinion the more general introduction of hop culture would be of great advantage to the agricultural interests of the State, as most farmers could cultivate a hop-yard with a very slight draw-back upon their other agricultural operations, and the product is one that finds a ready market, and generally at a paying price. True the prices are fluctuating, but it is questionable whether the average price of hops for the last forty-eight years in New England, being about 13 cents per pound, has not paid a greater profit than the growing of any other article of agricultural produce during the same period. Any land that will produce corn well, will grow hops well, and an acre of roots well cultivated upon good soil, will produce 1000 pounds of hops, which at the average price would be $130 00 for the produce of an acre. Now, Gen. Wm. P. Riddle, a dealer in and inspector and grower of hops for the last forty years, informs us that the cost of raising a pound of hops, including cultivating, picking, curing and pressing, is 5 cents. This would leave $80 as net profit upon an acre, or a 1000 pounds of hops, at the average price of hops for the last forty-eight years. Now, deduct from this say $30 upon a 1000 pounds, to meet the interest on fixtures, expense of marketing, the loss from keeping over, and all other risks, and put the net profits of an acre, or a 1000 pounds of hops, at $50, and what other agricultural product grown among us can compete with the hop? Through the politeness of Gen. Riddle, we are enabled to lay the following table before the society, showing

the amount of hops raised per annum, and the prices paid for them in New England, for the last forty-eight years:

Year.	Bales.	Pounds.	Average price.	Value.
1806	910	878,221	15	41,733 15
1807	1167	369,496	11	40,644 56
1808	1071	322,976	10	32,297 60
1809	993	280,063	10	28,006 30
1810	1124	299,500	27	80,865 00
1811	1519	416,050	7½	31,203 75
1812	1267	322,913	12½	40,364 12
1813	967	243,242	22	53,513 24
1814	767	179,640	25	44,910 00
1815	1434	331,673	30	99,501 90
1816	1336	286,374	32	91,957 68
1817	3087	729,862	34	248,153 08
1818	2709	616,366	14	86,291 29
1819	2834	656,902	5	32,845 14
1820	3555	782,663	6½	50,873 00
1821	2659	561,063	7½	42,079 72
1822	2810	548,709	10½	57,614 44
1823	2936	618,444	20	123,688 80
1824	2720	575,030	10½	60,378 15
1825	3054	621,241	15	93,186 15
1826	2134	409,007	15	61,351 05
1827	3766	752,140	7	52,649 80
1828	3391	678,410	6	40,704 60
1829	3179	632,806	5½	53,788 51
1830	3874	769,456	11	84,640 16
1831	3691	730,736	10½	73,489 46
1832	3179	606,602	23½	142,551 47
1833	5839	1,136,134	16	181,781 44
1834	6151	1,174,599	14	164,443 86
1835	4936	963,238	9½	91,507 31
1836	7608	1,441,936	7½	108,145 20
1837	5197	940,857	6	56,451 42
1838	3562	663,766	15	99,564 90
1839	2390	452,225	15	67,833 07
1840	2892	534,404	30	160,321 20
1841	2948	564,917	12½	70,614 62
1842	4543	922,932	8	73,834 56
1843	3329	640,085	6	38,405 10
1844	4060	773,362	9½	73,469 39
1845	3158	603,763	15	90,564 40
1846	5625	911,768	8	72,941 44

Year.	Bales.	Pounds.	Average price.	Value.
1847	3528	697,439	6	41,846 34
1848	3680	745,916	7	52,214 12
1849	4320	707,856	12½	88,482 00
1850	2777	528,658	25	107,164 50
1851	2678	537,668	25	109,417 00
1852	4388	839,723	20	167,964 60
1853	3496	640,076	30	192,022 80
	149,238	30,941,902		$3,998,224 02

The average price of hops per pound, for 48 years, is 12 4-5th cents.

The whole amount of hops grown in the United States for the year 1849, as computed in the census returns of 1850, is 3,467,514 lbs.

New England raised	707,856 lbs.	
New York "	2,536,299 lbs.	
		3,244,155 lbs.
Balance for other States,		223,359 lbs.

From the above table, it will also be seen that the price of hops during forty-eight years never has gone below 5 cents per pound, the actual cost of growing a pound of hops. Of what other agricultural product can the same be said, that is grown in New England? Then, this very year, and at the time of writing this report, hops readily bring 45 cents per pound, giving the enormous profit of $450 per acre!

The hop, *lupulus humulus*, in botany, is a genus of plants, neither the male or female flower of which has any corolla; the cup of the male flower is composed of five leaves; that of the female is made up of only a single leaf, very large, and of an oval figure; the seed is single, roundish, covered with a coat, and contained within the cup.

Mortimer reckons four kinds of hops: "1st, the wild garlic hop; 2d, the long and square hop; 3d, the long white; and 4th, the oval hop. The first of these is not worth cultivating. The second is a good hop, but looking generally red towards the stalk, it will not fetch so good a price at the market. The long white

hop is the most beautiful of all, and produces the greatest quantity; this kind and the oval will grow very well together. They delight in a deep rich garden mould.

The hop sends its roots four or five yards deep, and for this reason it thrives best in that land where there is a good bottom below what is usually stirred, or manured, for agriculture. If the hop land be wet, it must be laid up in high ridges, and drained, that the roots be not rotted or chilled. New land is found to succeed better with hops than old.

The dry stalks of hops should be burnt on the ground in winter, covering them with a little fresh earth as they burn. This makes together an excellent compost, to make the hills of. The land must be dug or plowed well, and laid very even, and then the places for the hills marked out by a line, and a stick put in every place where one is to be. A thousand hills may be made on an acre of ground. The largest plants are to be chosen, and it is best to procure them from some rich ground, where the hills have been made."

An English writer thus remarks upon the growing, curing and bagging of hops:

"Their ripeness is to be ascertained by their strong scent, their hardiness, and the brownish color of their seed. When they arrive at this point of maturity, no time should be lost in having them expeditiously picked, as in the event of a heavy rain falling, they would be bruised and discolored, and thus rendered less valuable in the market than such as are picked bright and clear. Special care ought to be observed, also, to pick the hops when they are dry, and the weather fair.

The *drying* of the hops is the next part of the process to be attended to. After having been picked, they ought to be immediately carried to the oast or kiln. This building is similar in its construction to a brick-layed kiln for the drying of oats; only that the floor is overlaid with a covering of hair cloth. The oast, previous to the hops being laid upon it, ought to be moderately heated by a fire of charcoal, and the heat not suffered to be diminished during the course of drying, but rather increased. The hops are to be laid on, a foot or a little more thick, and al-

lowed to remain, without being turned, for the space of nine hours, and in two or three hours afterwards they will be fit for bagging. This may be ascertained by the brittleness of the stalks, and the easy falling off of the hops at all, is considered to be injurious rather than otherwise; to prevent this, therefore, oasts ought, where hop-curing is carried on upon an extensive scale, to be furnished with a movable tin cover, let down to within a foot of the surface of the hops; this will render the oast close, and the heat will be reflected upon the hops in nearly an equal degree, on the top as at the bottom.

The mode of *bagging* is simple, and can be managed to suit convenience and particular circumstances. It ought to be attended to immediately on the hops being removed from the oast, and put in strong coarse linen bags; the bags must be placed in such a situation as to admit of persons stepping into them, in order to tread the hops down, as they are gradually put in. Thus put up, they will keep for several years, provided they be lodged in a dry place, and defended from the ravages of vermin."

But Gen. Riddle's method of cultivating, curing and drying is as follows:

Setting the Roots.—The spring of the year is the proper season for setting the roots. Prepare the ground by plowing and manuring in the same manner as for a grass crop. Plant the hops in hills seven feet apart each way, putting three pieces of the root, each about four inches long, in a hill.

The roots will not vine the first year, consequently a crop of corn may be taken from the same ground by planting in intermediate rows. In the succeeding fall put a shovel-full of manure upon each hill of the hop-yard, as protection of the roots against the frost.

Setting the Poles.—Nothing further is necessary for their welfare till May, the proper time for setting the poles. Hemlock is the best material for poles—eighteen feet long, shaved on four sides, in order that they may season well, thereby lasting the longer. Set two poles to a hill, about nine inches apart, and in ranges, leaning a little to the south, so that the branches of the vine may swing free. When the vines have grown to the

right length, select two of the most thrifty, and tie them with woolen yarn to each pole. This is very important. And attention also should be given to keep the main vines always upon the pole.

Cultivate the yard well so as to keep it free from grass and weeds, and prevent the branch vines from growing about the hill.

The hop generally blossoms about the 2d of July, and is matured fit for picking by the 5th of September. When the burr, beginning to open at the base, acquires a yellowish tinge, and the lupulin or flower has covered the tip of its stem, the hop is ripe and ready for harvest.

Picking the Hops.—The method of securing the hop crop when ripe is very simple. The vines are cut at the hill, and the poles, pulled from the ground, are laid across a box, into which the hops are picked. This box is usually about six feet long, three feet wide, and three feet high. Four or more can work at the same box. Females are generally the most expert in picking. A man or boy is necessary to tend the box and handle the poles. One person can pick from twenty-five to thirty pounds per day. They should be gathered as free from stems and leaves as possible.

Curing them, and the kind of Kiln.—After picking, the green poles are brought to the kiln to be dried, which is the most important part of the hop-growing process. It requires no inconsiderable degree of skill to be successful in this department. As knowledge of the mechanism and nature of a kiln is also necessary.

The most approved kiln is constructed after the following plan: A brick foundation wall is built seven or eight feet high, and ten by eleven feet in dimension. It is well to have this wall plastered internally. In the centre of the front wall, at the base, there is placed a large stone or brick furnace, suitable to receive fuel from without, and furnished with a funnel passing around within the foundation, above three feet from the top, and terminating in a chimney provided for the purpose. At the base also of this front wall, and on each side of the stove or furnace, there are two small openings, one foot by three feet in diameter, to let in

cold air at the bottom of the kiln. The top of this foundation is laid with lathing, one inch wide, the strips being one inch apart, and covered with a thin flaxen cloth. Boards about ten inches wide are placed lengthwise around this cloth, leaving a narrow walk around the kiln. The superstructure is placed upon the foundation wall, as convenience may require, with a roof for shedding the rain. The walls are about eight feet high, and provided with slide or blind openings, suitable to admit the air for driving off the dampness which arises in the process of drying the hop. Such a kiln is capable of curing one hundred and fifty pounds of hops in twelve hours, if properly regulated. The green hops are placed in the kiln box and spread upon the cloth about eight inches deep.

Drying and Bagging.—A constant heat must be kept up until the dampness of the hops has passed off. Attention also should be paid to the regulation of the windows above spoken of. To ascertain when the process of curing is over, take a medium sized hop and snap it; if the leaves fall off, and the stem breaks short off, it is sufficiently dry. The hops may then be removed to a room as free from light as possible, but provided with windows to admit a free circulation of air. A room adjoining the kiln is most convenient, where they should lay ten or twelve days before bagging. Hops are pressed into bales five feet long, one and one-half feet thick, containing about two hundred pounds—much in the same manner in which cotton is packed. The cider press is commonly used for this purpose.

Expense of growing Hops.—It requires one and one-fourth acres of land to grow 1000 pounds; good soil produces one to one and one-half pounds to the hill, if properly cultivated.

The cost of hemlock poles prepared for setting is two and one-half cents apiece.

It requires six feet of hard wood to cure 1000 pounds of hops.

The cost of a kiln, after the above plan, is $50, or thereabouts.

The whole cost of cultivating a field of hops, including picking, curing and pressing is about five cents per pound.

Hops were first cultivated in Massachusetts, to any considerable extent, in the towns of Wilmington, Tewksbury, Billerica,

and a few adjacent towns in the county of Middlesex, and the raising of them was mostly confined to that county.

The most prominent men of that time engaged in the cultivation, buying and selling of hops, were Col. Hopkins, B. Thompson, Mr. Jaques, the Walkers, and Wm. Blanchard, Esq., of Wilmington, who was agent for the contracting and buying hops for them. About the year 1800, a few individuals emigrated from Wilmington to Bedford, N. H., where they commenced the culture of hops, and being successful, in a few years most of the farmers in said town went into the cultivation of the article. In a few years the growing extended to most of the towns in the county of Hillsborough. William Campbell, M. O. Bailey, E. Baldwin, A. M. Beard and John O. Houston were the men who brought the hop roots from Wilmington to Bedford, and from 1825 to 1830, the town of Bedford was the largest hop growing town in New England. Isaac Riddle and Samuel Chandler, Esqrs., and Capt. Joseph Colley, were the most prominent men engaged in the business.

About 1825, a few individuals from the town of Bedford emigrated to Madison, Oswego county, N. Y., and carried the hop root with them, and first introduced the hop culture into New York, and at the present day New York is the greatest hop field in the United States.

About the same time there was a number of individuals of Bedford and Amherst emigrated to Bethel, Vt., who likewise carried the hop root with them, and cultivated the article successfully, from which the hop fields spread mostly over the State, and at present Vermont has become the second in New England for the cultivation of hops.

About 1830, the hop root was introduced into the State of Maine, and the growing of the article was carried on to a considerable extent until about 1845, when the cultivation of hops in Maine was about equal to Massachusetts or New Hampshire or Vermont, after which time the price of hops ranged so low that their farmers were obliged to plow up their hops, so much so that in 1852 the crop of Maine was reduced to 40,000 pounds.

Maine, New Hampshire, Vermont and Massachusetts are now

the only States of New England that have raised hops to any account.

In the year 1806, the legislature of Massachusetts enacted a law providing that all hops raised in or transported to the State of Massachusetts, for shipping, should be inspected therein. Accordingly, Col. Samuel Jaques of Charlestown, Mass., was appointed inspector—the first one in New England, and the only inspector till the year 1820, when the New Hampshire inspection law, enacted in 1819, went into operation. Most of the hops grown in Maine and Vermont have been inspected in Massachusetts even to the present day.

Col. Jaques projected the present inspection laws of Massachusetts, which introduced a new system of picking, curing and pressing hops. And by strictly observing this law, he has established a high character for, and enhanced the value of hops, both for exportation and the brewery.

Mr. Jaques resigned his office in 1838, became proprietor of the Ten Hills Farm of Charlestown, Mass., and is now noted as one of the most successful improvers of breeds of stock in New England.

Gen. Wm. P. Riddle of Manchester, to whom we are indebted for much of our information upon the subject of hops, has been a dealer and inspector of hops for the forty years last past. He is now engaged in the growing of hops, and of course finds his account in it. He is of opinion that our farmers can enter upon the cultivation of no article appropriate to our soil and climate, with surer prospects of success, than the cultivation of the hop. And we would recommend any farmer who may think it worth his while to commence the growing of hops, to correspond with him on the subject, satisfied as we are that few men in New England can give more reliable information upon the subject.

GRASSES—HAY.

Among the most important articles of produce to the farmer in this latitude, are to be reckoned the grasses, whether considered in relation to summer or winter feed of stock. In this region cattle must be stalled four and five months in the year, while far-

ther north and east, another month may be added to the number. Most assuredly then their food during that time must form an important item in the economy of the farm. As the grasses then must of necessity enter so largely into the operations of every farmer, it is highly important that their nature, adaptation and capacity be studied and known.

The grasses usually cultivated for hay in this region, are *Redtop*, *Herd's* and *Clover*.

Redtop.

Redtop, (*Poa pratensis*,) is an important grass with us among those comprising what is called "English hay." It is an English grass, brought over at an early day, and the same which is known in England as the "*Great smooth stalked Meadow Grass*." In England as with us it ranks high as a grass—but takes a higher rank there than here, as a hay making grass. In the pasture here as there it is invaluable. It is early in its foliage, affords the richest food in the pasture, is universal upon our soil, and continues in the same soil longer than most other grasses. In England, Redtop is considered their most valuable grass for hay, being stocky and hearty, and in these qualities is placed before Herd's grass. In this country, however, probably owing to some modification brought about by our climate and soil, Redtop is neither so stocky or hearty as Herd's grass, and for these reasons as a grass for hay making, ranks below it.

Herd's.

Herd's grass (*Phleum pratense*) is a native grass, and known in England as Catstail and Timothy. It is called Timothy, from one Timothy Hanson, who was among the early cultivators of this kind of grass. In the South and West the English name is preserved. In New England, however, this grass is universally known as Herd's grass—a name derived, it is said, from one Herd, who lived in the neighborhood of Portsmouth, in this State, and was the first to cultivate this kind of grass in New England.

Herd's grass is the reliable grass in New England, and indeed in this country, for hay making. Our soil and climate is so natural to this grass, that for stockiness, heart and sweetness, it

takes the very first rank as dry feed for cattle. In England it grows rank, becomes brittle and "brash," and is discarded as a hay making grass by most of the best farmers, who prefer Red-top and other grasses to it.

But in this country it holds, and probably will for a long time, the very first rank as a hay making grass. Among stablers generally hay from this grass commands a higher price than any other. Such being the fact, it will be a long time before it can be displaced by any grass, that all circumstances considered, shall even be its superior.

Clover.

Clover, the red clover, (*Trefolium pratense,*) is generally cultivated in Europe and America as a grass for hay making, but does not and cannot take a first rank as a grass for that purpose. It is a coarse, sweet grass, readily raised but not easily cured, and if not cured properly, is often little better "than mulch and litter," for the stable and yard.

Couch Grass or "Phin" Grass.

In addition to these grasses, there are others that are gradually coming into cultivation for pasture and hay making purposes, that need only to be better known to be generally cultivated.—In the fiast rank of these we place Couch grass, (*Ttriticum repens,*) a grass that is beginning to be appreciated upon the Merrimack, but which has usually been condemned as a curse upon a farm. It is often called Witch grass, and in the upper Merrimack Valley is known as "Fins-grass" or Fingrass, from "Phineas Virgin," we believe, upon whose land, in Concord, it was first cultivated. Its proper name, however, is Couch grass. It is a stocky, hearty, clean, sweet grass, and if properly cut and cured, will command a higher price in the market where it is known than Herd's grass. In addition to this it has other peculiar qualities. It will propagate from the root as well as the seed, will accommodate itself to poor as well as rich land, dry as well as moist land, growing most luxuriantly upon meadows and in valleys, and still not refusing a fair growth upon a pine plain, a gravel bank, or a sand knoll. Such a grass is invaluable. But

it has its drawback. Once in the soil it is there for a lifetime. It cares little for plow, harrow or hoe. Cutting it only multiplies it. For this reason it is considered a curse in a field for tillage. It is a grass that will not be kept under by cultivation. For this very reason it is invaluable. It will grow upon light soils, and produce well. But the true secret is to sow it upon our lands and cultivate it by *top dressing*. Once sown, apply top dressing, and the soil need not be touched with plow or hoe for a quarter of a century. If the crop fails in spots, upon knolls or other places, apply a heavy harrow, an extra sprinkling of manure, a liberal quantity of Couch seed, harrow again and roll, and the work is done. A field kept in Couch grass in this way will produce a greater profit in hay than if kept in any other grass in the usual method.

It may appear singular that we should recommend the cultivation of a grass that botanists pronounce a "noxious weed in garden or fields," but experience shows that the botanists know little of its value. Fifty years since upon the intervales of the Merrimack this grass was considered as a curse by the farmers generally; but within the last twenty-five years it has become to be considered of equal if not of greater value for hay making than Herd's grass. The more its qualities are considered, and its adaptation to soils and appropriate cultivation are studied, the more reliable it will become.

Foul Meadow.

Foul Meadow grass, (*Poa Nervata*,) is a most excellent grass for hay making, and as such is deserving of greater attention from the farmer. It is a luxuriant, sweet, stocky grass, delighting in rich damp soil. In appearance it is much like Redtop, but is more luxuriant and stocky. It is placed down by botanists as a perenial; but in this we think they are mistaken, and that Foul Meadow is a *biennial*. This accounts for the fact that Foul Meadw is so easily "killed out." Being of luxuriant growth, it is cut before much of it goes to seed, and thus it does not perpetuate itself, and too often runs out. The true policy is to let it "sow itself." This it will do if left to itself. Having become ripe, the seeds shatter out, and come up in the fall, ripening the

following year, thus increasing the number of stalks, and spreading itself over the adjacent soil.

If cut before it is ripe, this chance of self propagation is destroyed. Now there is no grass that can be left to ripen with so little disadvantage to its hay making properties. After the heads of Foul Meadow have ripened and the seeds have fallen out, it will be found that the lower portions of the stalk are green, lively and juicy, promising all the good qualities for hay making. This is a peculiarity in the Foul Meadow grass possessed by no other grass. The fact is to be accounted for by the nature of the grass. It is juicy, and grows very thick and compact, so that the sun rarely reaches the lower part of the stalks to dry them up. This grass is the most profitable grass to grow in "runs" and meadows, where the soil is rich and damp. It delights in the small deltas at the mouths of brooks, where it is enriched by every spray or flash of water, or on lands irrigated by spring and fall freshets. In such positions, it will produce as much hay as can well be made upon the ground, the swaths showing as much solid and valuable matter as many of the ordinary winrows upon upland in the country. Its sweetness and heart commend it to stock in general, and we hope that it will be more generally introduced among our farmers. The seed is readily to be bought at the seed stores, and those who do not grow it now will do well to commence its cultivation upon all lands suited to its nature. On lands appropriate to its culture there can be no more profitable grass for hay making.

HAY MAKING.

If a farmer has twenty or thirty acres of smooth land to mow, he should have a mower by all means, as with such surface there is great economy in its use. We don't know as there is a single machine known as a mower in the State at the present time, if not, we hope some of our thrifty farmers will set the example of their introduction and use. The horse rake and large hand rake are generally introduced. On smooth surface the common shaft revolving rake answers every purpose, but upon upland with rough surface the wheel rake is preferable, as it more readily adapts itself to the inequalities of the surface. No farmer who

has ten acres of land to mow can afford to do without a horse rake. In haying, the best of tools are the cheapest, and the man who buys a scythe and gets a poor one, because it is a quarter of a dollar *cheaper* than another stamp that is well approved, knows little of economy in haying; in a day's work with it he will lose double of the amount. Get the best of tools, then, and having them, put them and keep them in good order. Having the implements, see that your grass is fit to cut. Mow out all the "lodged" places, the bye ways, corners, &c., before you commence the main body of your grass. Grass should be cut when it is in that state of growth and maturity that will afford the most nutritious feed for stock. It should not be cut too early, as in that case there will be much loss in drying. Neither should it be left to dry too long before cutting, as then it will lose as much or more than by early cutting. The best time to cut grass is, probably, from the time it commences to flower to the time the seeds begin to form. During this time the saccharine matter is retained in the stem, and, of course, hay made during this period must contain the largest portion of nutritious matter, as the saccharine matter is absorbed in the course of forming the seed. But there are other circumstances to be taken into consideration in determining the best time of cutting grass. Where there are large burthens of grass, very close and thick at the bottom, the grass turns yellow before the same is in blossom, very frequently, and such grass should be cut, as much more is lost by letting it stand than is gained by ripening. Again, in rich or moist meadows the grass runs up so tall as often to lodge, and when lodged, grass soon commences rotting. Such grass should be cut at once, as delay only adds injury. Hay is best cut when free from dew or rain. If the grass be thin and dry, however, it can be cut easier and closer when the dew is on. Having commenced cutting the grass, see that it is cut close and clean. There is much economy in looking to this matter. And then after the grass is cut, be careful that it is well cured, or rather, well made into hay. Gregory says:—

"The great art in converting grass into hay consists in rendering it sufficiently dry to prevent its fermentation, taking on.

too great a degree of heat in the stack or mow, and at the same time preserving a large proportion of the natural juice of the plants. Where this medium can be attained with the most exactness, the best and most nutritious hay will be produced.

In the making of hay, some attention should be paid to the quality of the soil and the kind of herbage growing upon it. The hard benty, hay of a poor soil is in little or no danger of heating too much in the stack; it should, therefore, be put very early together, in order to promote a considerable sweating, as the only means of imparting a flavor to it, which will make it agreeable to horses and lean cattle, as it will be nearly unfit for every other sort of stock. It is the succulent herbage of rich land, or land highly manured, that is most likely to generate too great a degree of heat: of course grass from such land should have more time allowed in making it into hay. In moderately hot seasons the proper ground point of drying may be easily judged of; but when they are very hot and scorching, it is easy to be mistaken; as in such weather the grass becomes crisp, rustles, and handles like hay, before the moisture or sap is sufficiently dissipated for it to be in a state fit to be laid up in large stocks. If that, however, be done when it is thus insufficiently made, it mostly heats too much, becoming mow-burnt in some cases.

The art of hay making much depends in the due observance of the following rules, as nearly as circumstances will admit.

In the first day's process all the grass mown before nine o'clock in the morning must be spread out, great care being taken to shake it so as to leave it free from lumps, and to strew it evenly over the whole surface of the ground. It is soon afterwards turned, with an equal degree of care and attention; and if the number of hands be sufficient, they turn the whole again, or at least as much of it as they can before one o'clock. It is then raked into what are termed single windrows, or so as each person may form a row at about three feet distance; and the last operation of the day is to put it up into grass cocks. The business of the succeeding day commences with the process of spreading all the grass that was mown the first day after nine o'clock, and all that was mown the second day before the same hour. The

grass cocks are then well shaken out into separate plats of five or six yards in breadth. The plats are next turned, and after that the grass that was spread in the first part of the morning once or twice, in the same manner as described in the first day. This business should all be performed before one o'clock, that the whole may lie to dry while the people are at dinner. After this the first thing is to rake the plats into double windrows, which is done by every two persons raking the hay in opposite directions or towards each other, forming a row between them of double the size of the single windrows, each being about six or eight feet distant from the other. They afterwards rake the grass into single windrows; then put the double windrows into bastard cocks, and conclude by putting the single windrows into grass cocks. The labor of the third day is begun by first spreading grass mown and not spread the preceding day, as well as that mown in the day, and then the grass cocks are thrown out into plats as before, and the bastard cocks into plats of less extent. These narrow plats, though last spread out, are the first turned, then those which were in grass cocks; and lastly the grass is turned once or twice before one o'clock. When the weather has been sunny and fine, the hay which was in bastard cocks last night will this afternoon be in a proper state to be carried, as in fine seasons it may mostly be performed on the third day, but when the weather has been cool and cloudy, no part of it probably will be fit to carry. In that case, the first business after dinner is to take that which was in grass cocks the night before into double windrows; then the grass which was this morning spread from the swath into single windrows. After this the hay which was last night in bastard cocks is made up into full sized cocks, and care taken to rake the hay up clean, and also to put the rakings on the top of each cock. And lastly, the double windrows are put up into bastard cocks, and the single ones into grass cocks, as in the preceding days. On the fourth day the great cocks as thus described are mostly carried in before dinner. The other operations are similar to those of former days, and proceed in the same order, continuing them daily until the whole is finished.

During the whole course of hay making the grass should, as

much as possible, be protected both in the day and night against rain and dew by cocking."

The above method is the one in use in England upon large farms, modified of course by the introduction of mowers and horse rakes. In this country the process of hay making is much easier and shorter than in England, owing to the greater dryness of our atmosphere and an absence of that haziness and fog so prevalent in England. Grass permitted to remain with us upon the ground, in the swath, spread, or in cocks, as long as in England, would be "burnt up," and make next to worthless hay. In other respects the method of hay making is much the same in both countries.

Pasture Grass and Pasture Lands.

Farmers pay too little attention to their pastures. Those pasture lands capable of cultivation should be cultivated. We know there are many hills and mountain ranges, hollows and valleys, that cannot be cultivated, and of these we do not speak. But there are thousands of acres of good tillage lands as there are in the State "turned out to pasture," or that have remained as pastures since the first crop of rye was taken from them. We know of hundreds upon hundreds of acres of intervale upon the Merrimack that have been used as pastures for the last quarter of a century! Now this is wasteful farming—a sheer waste of money. With a little exertion one half of this land might be made to pasture the same number of cattle, turning the other half to tillage, or the same pasture might be made to pasture double the number of cattle. Either method would "coin money" for the owner, as produce is readily marketable; and pasturing, from its scarcity, is at a high price.

Twenty acres of pasture land is enough for an ordinary farmer, and with proper care, will pasture as many cattle as forty and fifty acres will under common usage. The pasture should be divided into three or four lots, and should be cultivated. That is, the lots should be occasionally plowed up, manured, planted, and sown down with grass. In this way the pasture bears sweet and luxuriant grass. And there is another advantage arising from lotting off a pasture. Cattle when turned into a pasture are un-

easy—they will roam over the whole pasture, cropping here a little and there a little—treading and wasting as much as they eat. In a small lot they get over their roaming sooner, and go to eating in earnest, and get their food in season. Trees should be left standing or planted in every pasture, that a cool shade be provided for the cattle in the heat of the day. It is needless to add that there should be an abundant supply of water, where cows are to be pastured. For horses and calves it is not so necessary, and sheep require no water in their pasture, as the grass and its morning dews are sufficient to meet their thirst.

It is usual to turn cattle to pasture the twentieth of May, and farmers often turn them out much earlier. But the thirtieth of May is full early, and much too early for some pastures. A pasture should not be fed till it has grass enough to satisfy the cattle without roaming over the whole pasture.

If the pasture is divided into small lots of from six to ten acres each, great advantage can be taken in feeding them. The one most forward can be used first and then the next, and so on through the lots. They can be pastured two to three weeks each through the season, till in September or October, the cattle can have a free range through the whole of the lots. The driest pastures should be used first, as this gives opportunity for wet ones to become dry, and if cattle are turned into wet pastures, they not only do not thrive so well, but their flesh is not so good, and in addition they destroy much grass by readily treading it into the mud, and thus not only injure the grass but the pasture.

There is a pasture grass cultivated generally in England, and in some sections in our country, that is worthy of general introduction through our State. This is known as the

Sweet Scented Vernal Grass.

The sweet scented vernal grass, (*Anthoxanthum Odoratum*,) is that which imparts the peculiarly pleasant aroma to new mown hay. It is of easy cultivation, sweet, nourishing, the cattle seek after it with avidity, and above all, it imparts a peculiar and pleasant flavor to butter.

It comes early into blossom, and is also valuable for its readiness to grow in moist kind of soil and situation, but is not so pro-

ductive as some other grasses. It is well known to be the only grass in England or in this country that is odorous, the agreeable scent, as before suggested, of new mown hay being produced mostly by it, and the green grass when bruised readily imparts the odor to the fingers, by which means this grass is known from all others.

The superiority claimed for the flavor of English butter is said to be owing to the fact that this grass prevails generally in English pastures, and in this country where this grass prevails, the flavor of the butter is peculiar and excellent. Thus, Philadelphia butter is celebrated for its excellence and its peculiar pleasant flavor, and the sweet scented venal grass prevails in the section of country around Philadelphia, the seed having been brought from England and distributed over that section at an early period. There can be no doubt of the fact that the peculiar excellence of the Philadelphia butter is owing to the presence of this grass in the pastures of that region. It should be introduced in our State; and the person who shall introduce it and give its seed for distribution, will confer a lasting favor upon our community.

The Root Crop—Turnip.

Now that the potato is an uncertain root, it is absolutely necessary that our farmers turn their attention to the cultivation of other roots. There can be no doubt that the turnip is one of the best roots that can be cultivated, taking into consideration its certainty and cheapness of growing, and its properties as an edible root. In England no farmer can prosper without his turnip field, and the farmer who neglects this crop is put down as thriftless at once, and turns out so in the end. The rent of land is so high that the most advantageous crop must be grown to meet expenses, not to say anything of yielding a profit. Long experience has shown the English farmer that to keep a stock for work or the shambles, and keep them with advantage, he must raise turnips. His land will produce no other crop with the same labor, certainty and amount. Hence in England it is universally grown. Now most crops that are valuable in England are valu-

able here. Most assuredly such is the case with the turnip. It is a most profitable crop to feed out to stock.

BOUSSINGAULT has performed various experiments and formed tables showing the amount of nutriment in roots and grains of various kinds. This experiment as to the nutriment in various common articles of consumption for man and beast, shew the following results:—

Wheat,	1.91
Rye,	2.00
Farina of barley,	2.02
" cabbage,	1.48
" carrots,	1.70
" potatoes,	1.25
Potatoes,	1,096
Carrots,	1,351
Cabbage,	1,446
Turnips,	2,383

The ruta baga and round, flat or English turnip are considered the best varieties for this region. Ruta bagas may be sown from the middle of May to the middle of June. The ground should be plowed and harrowed to a garden mould, and then rolled and thrown into ridges from two to two feet and a half apart. The seed should then be drilled on these ridges ten inches apart. The plants should be kept clear of weeds with the hoe, and when there are any missing they should be replaced with others. We need not add that the richer the land the larger the crop.

The round turnip may be sown any time prior to the 10th of August, broad cast. The land should be completely pulverized and should be rolled after sowing. After the plants have come up they should be thinned out to eight to twelve inches apart, each way, according to the strength of the plants.

M'Mahon says:—"The critical time of the first hoeing is, when the plants, as they lie spread on the ground, are nearly the size of the palm of the hand. If, however, seed weeds be numerous and luxuriant, they ought to be checked before the turnip plants arrive at that size; lest being drawn up tall and slender, they should acquire a weak, sickly habit. A second hoeing should be given when the leaves are grown to the height of eight

or nine inches, in order to destroy weeds, loosen the earth, and finally to regulate the plants; a third, if found necessary, may be given at any subsequent period."

The fly often injures the turnip, and Loudon says:—"Arch. Garrie, a Scottish gardener of merit, tried steeping the seeds in sulphur, sowing soot, ashes and sea-sand along the drills, all without effect. At last he tried dusting the rows when the plants were in the seed-leaf, with quick-lime, and found that effectual in preventing the depredations of the fly. "A bushel of quick lime," he says, "is sufficient to dust over an acre of drilled turnips, and a boy may soon be taught to lay it on almost as fast as he could walk along the drills. If the seminal leaves are powdered in the slightest degree, it is sufficient; but should rain wash the lime off before the turnips are in the rough leaf, it may be necessary to repeat the operation if the fly begins to make its appearance."

Upon this subject, Dr. Harris of Cambridge says—"I am disposed to rank the turnip as a root, next in value to the potato. In many countries it forms a large part of the vegetable sustenance of man and of his domestic animals. It is stated that in England, soon after the turnip appears above ground, a host of little jumping beetles, called by the farmers the *fly*, attack and devour the seed-leaves, so that on account of this destruction, the land is often obliged to be re-sown, and frequently with no better success. The consequent loss sustained in the turnip crops of Devonshire, in the year 1786, is estimated, in Young's "Annals of Agriculture," to amount, at least, to one hundred thousand pounds sterling. In the same country the caterpillar or the cabbage-butterfly attacks the turnip also in great numbers. Insects allied to these are found upon the turnip in this country. The leaves, in all stages of their growth, are eaten through and through with numerous holes by a small, black, jumping beetle, a species of *Haltica*. Some of these insects infest several of our useful plants, such as the horse-radish, the mustard, the radish, the cucumber, &c. The same means for protecting these plants are to be used, because the habits of all the Halticas are similar. It has been recommended

to sow a quantity of radish seed with the turnip seed; for the jumping beetles are found to be so much more fond of the radish than of the turnip leaf, that it will desert the latter for the former. Air-slacked lime, sifted or dusted over plants in some instances preserves them, and sprinkling with strong alkaline solutions will kill the insects without injuring the plants.

POTATOES.

There is some discrepancy among writers upon this edible root, as to its first introduction into New England. It is said that potatoes were raised as a curiosity in the garden of Mr. Eppes, of Boston, prior to 1711. This statement rests upon a tradition in Mr. Enos Pope's family, of Danvers, Mass. His grandfather, he says, saw potatoes in the garden of Mr. Eppes, and asked him what they were. Mr. Eppes replied, "They are Irish potatoes." His grandfather was born in 1690, and there is no date or circumstance to establish the fact, other than the very indefinite and uncertain one that he saw them when a *young man*. Being merely a matter of tradition, it might have been in 1711, or ten or twenty years later, that Mr. Eppes had potatoes in his garden as a curiosity. It is said also that potatoes were raised on "Indian Hill," in Newbury, Mass., as early as 1717. This rests upon tradition merely. It may possibly have been so, but we are inclined to doubt it.

Lewis, in his history of Lynn, says: "About the year 1718, potatoes were first introduced into Lynn. A man received two or three, which he planted; and when he gathered the produce, a few of them were roasted and eaten merely from curiosity; and the rest of them were put in the shell of a gourd and hung up in the cellar. The next year he planted them all, and had enough to fill a two bushel basket. He knew not what to do with so many, and gave some of them to his neighbors. Soon after one of them said to him, 'Well, I have found that potatoes are good for something. I had some of them boiled, and ate them with fish, and they relished very well.' It was several years after this before potatoes came into general use, and then only in small quantities."

Now Lewis is indefinite as to the time of their introduction into Lynn. He says "about the year 1718," which is almost as uncertain as "once upon a time."

But it is probable Lewis is somewhat near the time. It is very likely that some one of the "Scotch Irish" who arrived in Boston in 1718 may have given to a friend in Lynn "two or three which he planted" in 1719. The truth is, that although it is possible that potatoes may have been raised in New England as a mere curiosity in the garden at an earlier date, yet they were not introduced for systematic culture till 1718, when the colony of "Scotch Irish" emigrated to this country, and brought this valuable root with them for cultivation and daily use. And we are of the opinion that the potatoes said to have been raised in Boston prior to 1711, in Newbury in 1717, and in Lynn about 1718, were part and parcel of the same seed, brought over by the "Scotch Irish" in 1718.

These people spent the winter of 1718 and 1719 in looking out a place whereon to locate themselves, remaining at Haverhill and Andover, and in that neighborhood, while they should determine upon a location. They had already partly fixed upon the ungranted land, known as the "Chestnut country," afterwards as "Nutfield," subsequently as Londonderry, and in the spring of 1719, sixteen families moved upon the tract, and immediately commenced building their cabins upon a branch of Beaver river, called "West Running Brook." Prior to their removal, a part of their seed potatoes had been planted in the garden of Mr. Nathaniel Walker, of Andover, Mass., to save the seed in case they should not locate in season to plant them. These produced the first crop of potatoes, according to Belknap, ever raised in New England. Later in the season, the emigrants at Londonderry planted the remaining portion of their "seed potatoes" around their cabins, and this crop, with those they had raised in the garden of Mr. Walker, were the first potatoes ever raised in New England, for continuous and useful cultivation. The potatoes of that day were small, as may be inferred from the fact stated by Lewis, that most of the produce of the first two or three planted in Lynn were laid aside for planting *in a gourd*

shell, in the same manner as the good woman upon the farm at the present day lays aside the melon, squash and pumpkin seeds.

From Londonderry, the potato soon spread through the country, but was cultivated out of Londonderry more as a curiosity than for use. In fact, twenty-four years after, in 1745, a captain at the siege of Louisburg, who with his company formed a part of the detachment to hold that fortress through the winter, was particular, in writing home for supplies, to name that they should send *a peck of potatoes!*

But in a rich virgin soil, the potato soon improved in size and quality; and with this improvement came an appetite for the root, that made it one of the most common, pleasant and substantial dishes upon the table. As they became common and necessary upon the table, their cultivation increased until they became a common and profitable food for the stye and stable. In a century they seem to have gained their perfection as to size, quality and yield, and for the last twenty-five years have been depreciating in all these qualities. In fact, within the last few years this excellent root has become an uncertain, if not an unprofitable one, for cultivation. The young farmers of the present day would hardly credit the well authenticated accounts as to the productiveness of the potato thirty or forty years since. A farmer of West Newbury, Mass., raised *four bushels and a half* from one single potato.

Mr. Israel Hunt, of Sudbury, raised in 1829, from *two bushels* of potatoes, *one hundred fifty-seven and a half bushels!*

At the present time, 150 to 175 bushels of merchantable potatoes to the acre would be considered a crop worthy of a premium; and the chances are that in quality they would be considered indifferent, by those who know a good potato. And that class of people are becoming scarce.

And what has caused this deterioration in the potato? Mainly, using *cut* and *small* potatoes for seed, and dressing them with *animal manure*. There never has been but very little gained by *production*, even, by cutting potatoes in any manner. This has been shown by repeated experiments. The following exper-

iment, by Mr. Nason, of Augusta, Me., seems to be conclusive upon this point:

"20 Chenango potatoes, weighing 6 lbs., planted whole, produced 67 lbs.

20 Chenango potatoes, weighing 6 lbs., in halves, 99 lbs.

20 Chenango potatoes, weighing 6 lbs., tops, middle and butts; tops 32½, middle 30½, butts 35, total 98 lbs.

20 Chenango potatoes, weighing 6 lbs., eyes taken out, 120 lbs.

60 small Chenango potatoes, weighing 6 lbs., planted whole, 105 lbs.

20 white potatoes, weighing 6 lbs., planted whole, 124½ lbs.

20 white potatoes, weighing 6 lbs., planted in halves, 111½ lbs.

20 white potatoes, weighing 6 lbs., seed end, middle and butts; seed end 38½, middle 39½, butts 39, total 117 lbs.

20 white potatoes, weighing 6 lbs., eyes taken out, 150½ lbs.

60 small white potatoes, weighing 6 lbs., whole, 95 lbs.

20 long red La Plata potatoes, weighing 6 lbs., whole, 92 lbs.

20 long red La Plata potatoes, weighing 6 lbs., seed end, middle and butts; seed end 32, middle 38, and butts 33, total 103 lbs.

20 long red La Plata potatoes, weighing 6 lbs. eyes taken out, 129 lbs.

60 small long red La Plata potatoes, weighing 6 lbs., whole, 94 lbs."

The same weight of potatoes was planted in each instance; and it would seem that the cut potatoes yielded a trifle more in weight. Eighteen pounds of potatoes were planted *whole* in three lots by themselves, and they produced 296½ lbs. of potatoes. Eighteen pounds of potatoes were planted in the other lot *cut*, and they produced 310½ lbs., thus giving 14 lbs. in favor of the *cut* potatoes—assuming that the soil may have been equal in quality and cultivation.

But although the produce for a time may be equal or greater from cut potatoes, there can be little or no doubt that the produce from cut potatoes becomes deteriorated. The best culti-

vators in England always select the fairest and best shaped potatoes for seed, and plant them *whole*. They do this from the fact that long experiment has shown that the produce from such seed thus planted is the best.

The reason is obvious—perfect and large tubers have a greater power of germination than imperfect and small ones. The mutilating large tubers for planting, and the almost general use of small ones for the same purpose, have lessened the power of germination, and each successive crop has deteriorated in consequence.

Most cultivators have been perfectly careless, not to say reckless, in the cultivation of the potato. Little or no attention has been paid to a continuation of its good qualities or to perfecting them, but on the contrary the very means best adapted to degenerate this vegetable seems to be followed.

Hand in hand with this unwise practice in the selection and mutilation of the tubers, is another, equally if not more pernicious in its effects upon this vegetable—that of using stimulating or animal manures in its cultivation. In its natural soil in South America and Mexico it grows wild, without the assistance of stimulants. An exotic, we have applied to its culture stimulants—such kinds of manures as are entirely dissimilar to its nature or the soil of its native home.

In this manner we have increased its value as a mere article of food, by increasing its size and quality. But this increase has been gained at the expense of the health of the vegetable.

The Rev. Mr. Merrick, in a prize essay, written for the Norfolk County Agricultural Society, remarks upon this subject:

"In its wild state, the potatoe produces small tubers and long tops. We have increased the fruit and diminished the amount of stems and leaves—an operation that may have occasioned a great change in its constitutional condition. The energies of the plant are withdrawn from its own nutrition and determined towards the production of fruit to such a degree as to cause its debilitation and decay—an effect with which we are familiar in fruit trees. In a temperate, mountainous country, it probably continues to live in high health. But it has been transported to

every variety of climate and of soil, and excessively, and of course unnaturally stimulated for the sake of large crops. We have known the effects produced on some other plants by a similar course. If a pear tree is over-stimulated, the new wood will not ripen. If wheat is over-stimulated by animal manure, the stalk is rank, tender, liable to rust, and bears no fruit, or very little. Some garden vegetables so treated disappoint our hopes altogether. Why may not similarly unfavorable results occur in potatoes, by pursuing a course of treatment so foreign from that which nature observes? Why are potatoe plants grown on a good but unmanured soil less liable to rot than others? Because, in this respect, they are situated more like the wild plant. Excessive stimulation by manure increases the amount of cellular texture, and makes the tuber soft and more spongy, and hence more subject to decay, more likely to be affected by unfavorable atmospheric conditions. And when this course of unnatural treatment is continued for two centuries, it is not strange that although the amount of yield is increased, it may be done by undermining the health and perhaps diminishing the vitality of the plant. Probably nature has limits beyond which her perversion cannot be carried with impunity."

The potatoe undoubtedly has been depreciated in its vigor and healthy qualities, by propagation from tubers rather than seed. If this be so, it follows that propagating from seeds may renew its vigor and health. Upon this subject Mr. Merrick remarks:

"In its wild state, the potatoe propagates itself by seed as well as by tubers. From recently grown seeds, it annually renews its youth and health. And wild plants which reproduce themselves without human aid, resist tendencies to disease better than cultivated ones. But we have checked the potatoe in its habit of reproduction from seed, because we wanted an increased yield of tubers—a result attainable, in part, by preventing the plant from following out its natural tendency to produce seed. We gain in one direction and lose in another.

It has often been suggested that we might perhaps recruit the failing health of the potatoe by raising it from seed, and experience teaches us that potatoes so raised are usually best for the

table. But seedlings rot as much as potatoes raised from tubers. Why not? They come from the seed of diseased tubers. The seed partakes of the general deterioration. Whatever may have been the primary cause of the disease, it has affected the whole plant. And raising from the seed neither invigorates the vegetative principle nor checks the tendency to decay. There is a defective constitution, the vitality of which cannot be restored. The disease is a constitutional debility, resulting from the unnatural circumstances in which the potatoe is placed, analogous to readily acknowledged causes of decay in other plants. Some kinds do not rot much. Others are almost destroyed; and all kinds are more or less affected. Some may have been cultivated for a shorter time than others, and now have sounder health. We may also be ignorant of some conditions which, besides long continued and unnatural cultivation, may be requisite to produce the result. Where it is so difficult to pronounce positively upon the primary cause of the disease, may we not be justified, in the absence of any tolerable theory, in regarding the result as proof of deterioration?

Does it not favor this theory, that potatoes planted on light, dry, and especially on new land, are less liable to rot than on heavy, wet and manured land? It is reasonable that this should be so, because the former condition is an approximation to that of the original plant. Potatoes thus grown will produce a smaller stem and fewer leaves, and though the tubers may also be small, they will be good flavored. In the new and fertile land on the bayous of Louisiana, the tubers are said to be as large and as good flavored, as dry and nutritious as any raised elsewhere. From Bermuda, also, are brought our best early potatoes. If such a culture will not restore health, it may cause the disorder to assume a milder form. And while the whole subject is environed with doubt, and the origin of the disease has baffled the sagacity of the wisest phytologists, we may well speak with modesty of remedies. But there seems to be reason in planting either on new land, or on light land, enriched with straw, clover, leaf, or other vegetable manure. Whatever manures be used, the land should be light and dry, and easily accessible by the sun.

Great care should also be exercised in selecting and planting the finest varieties of seedlings. Nor should it be forgotten that too much importance has been attached to the transportation of potatoes for planting to localities distant from those in which they grew. The gain from that practice will hardly pay the expense. Seedlings adapt themselves to their home, and do as well there as elsewhere.

But it seems to me that our chief hope of success lies in planting potatoes and seed brought directly from their native country and their wild state. Even should it be true, as it has been sometimes asserted, that such a course is not absolutely certain to be successful, yet it is much more likely to be so than any hitherto proposed. We can thus start anew; and with the multiplied facilities of science, and with hosts of intelligent farmers and gardeners, we may, in a comparatively short time, restore this important plant to its former health and productiveness. It is the duty of those having the means and opportunities to use them in a work so intimately connected with the pecuniary and social prosperity of the people. Nor would it be improper for the government of the United States to instruct its diplomatic agents to institute inquiries and to make personal examinations touching this subject, in other countries. It is said that there are some kinds of potatoes cultivated in South America superior for table use to any known among us."

There is little doubt in our mind that the potatoe can be saved from disease by proper cultivation. To cultivate from the seed, and from tubers from the native soil, and from whole tubers, as has been suggested, will undoubtedly tend to save this prominent article of food from complete deterioration. But the kind of soil, and the manner of cultivating it, are equally important.

New soil, or that as near a state of nature as can be obtained, should be selected for planting the potatoe, and then animal manure should be entirely discarded in its cultivation. Vegetable manures, or composts of vegetable or animal manures, should alone be used. With such precautions, there is very little danger of disease in the potatoe. We have succeeded in raising

perfectly sound and healthy potatoes for the last five years with a compost made as follows:

Meadow muck,	12	parts.
Leached ashes,	4	"
Slacked lime,	2	"
Charcoal dust,	2	"

Such a compost, heaped up in the spring or summer, spaded over in the fall, again spaded over in the spring, and used freely in planting potatoes, broadcast, and in the hill, will raise sound potatoes, and not only potatoes, it will raise any other vegetable in the garden or field.

Upon this subject we not only speak from our own experience, but from that of others. Since we commenced experimenting with this compost upon the potatoe, others in widely different sections of our country have experimented with the same kind of compost, and with the same result. A gentleman in Massachusetts, of great experience in agriculture, says he never fails of a sound crop of potatoes by using a similar compost. Another in New York reports that he uses almost the same kind of manure upon his potatoes, and with complete success. Now one swallow does not make a summer, neither does one successful experiment in agriculture establish a principle. But when individuals in widely different sections of our country raise sound and healthy potatoes, upon the same kind of soil, and with the same kind of manure, and this year after year, when their neighbors at the same time have hardly an undiseased potatoe in their fields, it is pretty conclusive evidence that there is something in the soil or in the manure, or in both, that produces such results. And such experiments are worth repeating. If such a course of culture will produce sound potatoes, will cure the "potatoe rot," it should be generally adopted.

In closing their report, the committee would express their regret that there were so few competitors for premiums in their department. Of that few, two only complied with the requisitions of the Society, in furnishing statements as to their mode of cultivation. This is to be regretted, and we hope hereafter to see the premiums in this department striven for by a great number

of competitors, as they are certainly among the most valuable under cultivation by our farmers.

C. E. POTTER, for the committee.

GRAIN CROPS.

JUDGES.—T. R. Crosby, Hanover; Benjamin Hill, Northfield; T. H. Leverett, Keene.

Winter Wheat.

Mark Morse, Francestown, 32 bushels 26 quarts, ... $10
John S. Craig, Henniker, 30 bushels, ... 7
Asahel Smith, Hanover, 27 bushels, ... 5
Aaron Rollins, Sanbornton, 23 bushels 22 quarts, . Transactions.

Spring Wheat.

Ezra J. Glidden, Unity, 30 bushels, ... 8

Indian Corn.

Joseph Winslow, Epping, 111 bushels, ... 10
Joseph Cilley, Nottingham, 109 bushels, ... 7
Elijah Blake, Keene, 107 bushels, ... 5
John Brown, Lake Winnipisseogee, 104 bushels, . . Transactions.

Barley.

W. P. Riddle, Manchester, 38 bushels, ... 5
R. W. Currier, East Kingston, 35 bushels, ... 3

Rye.

George Porter, Manchester, 28 bushels 13 quarts, ... 6

Oats.

Edmund A. Marsh, Walpole, 78 bushels, ... 6

Buckwheat.

J. L. Fletcher, Derry, 20 bushels, ... 5

The committee would recommend that W. R. Kimball, (whose entry was made too late,) be awarded a gratuity of $5 for his crop of corn, 108 bushels to the acre. Also the second premi-

um, ($7,) on spring wheat, for a crop of 28 1-4 bushels to the acre.

T. R. CROSBY, for the committee.

STATEMENTS ON CORN.

Mr. Winslow's Statement.

To the Secretary of the New Hampshire State Agricultural Society—Sir:—I hereby enter for premium a lot of corn, described as follows: Lot No. 5, in field A, containing one acre and one hundred and thirteen rods, on which grew the present season three hundred and twenty-five bushels of ears, exclusive of a lot of green corn not measured. The ears were measured in a basket holding one and one-fourth bushels. I had four baskets of ears shelled, yielding a full average of twenty-three and one half quarts of shelled corn from each basket of corn, making one hundred and ninety bushels and twenty quarts on the lot, and equal to one hundred and eleven bushels and twenty-eight quarts to the acre.

The surface of the lot on which said corn grew is slightly uneven or rolling, on a moderate southern slope.

The nature of the soil.—It is a light colored loam, containing a large per cent. of mineral matter; there is an immense amount of what appears to be fragments of crushed stones, varying in size from that of a marble to the finest grain of dust. Originally there was an abundance of large stone on the lot, some of which remain at the present time, mostly of granite formation. The soil is sufficiently light, when well ploughed, to be of very easy cultivation, and not materially affected by a wet or dry season. The lot has grown grass for ten years in succession, the last crop in 1851.

Preparation.—September, 1851, it was plowed, furrow slice about twelve inches wide by eight deep. April, 1852, applied twenty cart loads of compost manure, made of swamp muck

spread on the barn yard the fall previous, and the collections during winter. This was spread on the furrow and well harrowed in; then sowed the lot with barley. Nov. 5th to 10th, spread twelve loads of hog compost manure on one half the lot, then ploughed the whole lot. 1853, May 5th to 9th, spread on thirty-two cart loads of green manure, and plowed in, furrow slice twelve inches wide by nine or ten deep; harrowed twice for planting.

Planted the 13th and 14th of May. I furrowed the lot with a horse plow, then crossed it the other way, making the rows cross each other at right angles with the hills, three feet apart each way. By planting in this way, the cultivator may be run in two directions at hoeing time, making a great saving of hand labor.

Seed planted is known as the yellow Flint corn, an eight-rowed variety, producing very sound, well filled ears, yielding a large amount of corn in proportion to the bulk of ears.

Cultivation.—June 2, went over the lot once with cultivator. June 6 and 7, run the cultivator twice in each row, at right angles from the first time, then followed with the hoe. June 27, run a cultivator through the rows once; then a horse plow at right angles from the cultivator, and followed with the hoe.

Harvesting.—Sept. 18 to 22, cut the top stalks. Sept. 29th to Oct. 12th, harvested the corn.

In review, I would say that I am convinced a three-fold object was attained by fall ploughing in November, 1852. 1st. To pulverize the soil. 2d. To mingle the manure with the soil, and be more readily decomposed, or enter into new combinations, with the elements of earth in early spring, and become food for the young plants, previous to its deriving support from the spring applied manure, or before this has even taken on fermentation. 3d. To throw an almost endless lot of grass roots (known as wild rye, barn or witch grass,) on the surface to winter kill, which work was very thoroughly done. This spring, in harrowing, it was constantly clogged with dry roots, but enough remained to give a good catch, as we should say, were it laid to grass. The digging of the dry and green roots will account for the great

amount of labor charged at first hoeing. The carts used for hauling the manure hold one-half cord each, and were filled about full on the average.

The fraction (8-100 of a rod,) I have not used in casting, but cancelled by not measuring the small green corn. I did not specify the amount of seed in the proper place in the report, but will state it here. Four kernels of corn were planted in a hill, amounting to sixteen quarts on the lot.

All of which is most respectfully submitted by

JOSEPH WINSLOW, Epping, N. H.

To JAS. O. ADAMS, Esq., Manchester, N. H.

The expense of raising said corn may be estimated as follows:

32 loads of manure,	$32 00
Hauling and spreading the same, 10 days labor,	7 50
Plowing and harrowing, 13½ " "	10 12
Planting, 6½ " "	4 87
½ bushel of seed corn,	50
Interest on land and taxes,	10 90
Cultivating three times and hoeing once, 14½ days labor,	10 87
" two " " 6 " "	4 50
Harvesting and husking, 21 days labor,	15 75
	$97 01

The receipts were as follows:

190 bushels of corn at 92 cts. per bushel,	$174 80
3½ tons corn fodder at $10 per ton,	35 00
	$209 80
	97 01
From which take the expense and it leaves a balance of net profit of	$112 79

October 21, 1853, surveyed for Joseph Winslow lot No. 5, in field A, containing 1 acre 113 8-100 rods.

ABRM. PLUMER.

State of New Hampshire—Rockingham ss., Nov. 21st, 1853.

Personally appearing the within mentioned Joseph Winslow,

and made affirmation that the above statement by him subscribed is true.

Before me— D. L. HARVEY, *Justice of the Peace.*

State of New Hampshire—Rockingham ss., Nov. 21*st*, 1853.

Personally appearing George W. Winslow, and made oath that he assisted in harvesting and measuring the above mentioned piece of corn, and that the statement is true.

Before me— D. L. HARVEY, *Justice of the Peace.*

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Col. Cilley's Statement.

To the Committee of N. H. State Agricultural Society on Indian Corn—Gentlemen:—Last spring I selected a piece of land containing one hundred and eighty-three and seven tenths square rods, the soil being a strong loam, with a substratum of hard pan, planted the previous year with corn, and as soon as the ground was dry enough I plowed it nine inches deep, without any dressing. About the 10th of May I gave it a light dressing of manure made from my cattle last winter, and plowed it in nine inches deep. I then gave it a light dressing of compost manure and harrowed it, after which I planted it with corn, mostly the eight-rowed native seed, with a slight mixture of the ten and twelve rowed, in hills equi-distant three feet and two inches—five kernels in each hill. I hoed it three times. On the second hoeing I left but four stalks in a hill, and many of the hills had but three stalks. In October I harvested the corn in two baskets. I had one hundred and thirty-four baskets, viz: each basket sixty-seven times full. Last week I directed my man to fill with the corn the same baskets used in gathering it, as nearly as possible in the manner he did in harvesting it, and shell it. He did so, and shelled corn measured sixty quarts, which gives one hundred and twenty-five bushels one peck and six quarts of shelled corn from one acre twenty-three rods and seven-tenths of a rod of ground. The corn was so situated near

my barn that my fowls, forty to fifty in number, had daily access to it, which must have somewhat diminished the crop.

All of which is respectfully submitted by

JOSEPH CILLEY.

Nottingham, N. H., Oct. 31, 1853.

State of New Hampshire—Rockingham ss.

This 31st October, 1853, personally appeared Samuel Colbey French, and made solemn oath that he did at the request of Hon. Joseph Cilley, measure the corn mentioned on the within statement, and that he truly and faithfully attended to that service, and found the measurement as mentioned in said statement to be as correct as possible, and the whole process was as described in the statement aforesaid.

Sworn before me— ISRAEL BARTLETT,
Justice of the Peace.

October 27th, 1853, surveyed for Col. Joseph Cilley a piece of land containing 1 acre 23 70-100 rods.

ABRM. PLUMER.

Mr. Blake's Statement.

Keene, October, 1853.

To the Committee of the State Agricultural Society on Grain Crops—Gentlemen:—I send you the following statement respecting a piece of corn which I offer for a premium, raised on my farm the present year. Last spring I laid out by estimate about three hundred rods of land; soil, marl loam. The autumn previous I carted mud, leaves, &c., into my barnyard. Of this composition, mixed with different kinds of stock manure, applied twenty-two cart loads to the land, laid in small heaps, and thirty-two loads taken from the barn and hog-yard, laid in two heaps, forty bushels to a load; when fermented, pitched it over as often as the heat required. About the 5th of May I spread the small heaps on the greensward, then plowed straight and shut the furrows smooth, (with Ruggles, Nourse & Co.'s im-

proved plow,) about seven inches deep. Then spread fourteen loads of stable manure on the furrows, and harrowed it both ways with a light team, which did not harden the ground. The 16th of May, marked it out with a stroke, five rows at a time, three feet apart. Then furrowed it with a side hill plow, making a place for the manure; then marked it the other way the same distance, making about five thousand hills to the acre. Commenced laying out the fermented manure from the large heaps, one shovel full in a hill, using it all except two loads. Planted seven kernels of eight rowed corn in each hill, (Brown long eared and Whitefield corn.) Finished planting about the 22d of May. The weather being warm, the under manure and turf began to ferment, which started the corn very quick, and it grew rapidly. The second week of June cultivated it each way with a cultivator, raised a small hill with the hoe, and thinned out where it grew too thick. The last of June hoed it again, leaving four stalks in each hill, making about twenty thousand to the acre. A third hoeing was deemed unnecessary as well as impracticable, so rapid and luxuriant was its growth. The stalks were taken off the 12th of September, giving it a better chance to dry, the husks being turned white. The middle of October, took from one side of the field what I thought to be an acre, and harvested twenty-five hills in different places, which filled my measuring basket heaped full each lot, and by counting made from one hundred to one hundred and ten ears. I then harvested the remainder of what I called an acre, and put it together, estimating the whole number of ears to be from twenty to twenty-one thousand. Filled two baskets, one hundred ears each, without regard to size, which weighed seventy-four lbs., cobs fourteen lbs.; shelled, measured one bushel two quarts.

I would further mention that after the grasshoppers disappeared, about fifty turkies, besides a lot of other poultry, made frequent visits to the field until it was harvested.

Yours, ELIJAH BLAKE.

Keene, October, 1853.

I hereby certify that I assisted Mr. Elijah Blake in measuring a quantity of corn, said by Mr. Blake to be the product

of a certain piece of land. We measured in a basket that held one bushel and four quarts of shelled corn, and made it contain two hundred and three baskets full, including seven baskets of seed and three of small corn. Mr. Blake's son said he had fed out two bushels and three pecks of the poor corn previous to the measuring. We then filled the basket, without any particular attention to the largest ears, and one hundred ears made the basket as full as we had filled it in measuring, as nearly as we could judge. We then shelled it, and it made half a bushel and nearly one quart. We then weighed the same basket full, containing one hundred ears, and it weighed thirty-seven pounds, and the cobs weighed seven pounds, which would give (allowing the quart measure to have been full,) one hundred and ten bushels and nineteen quarts on the whole piece. We then measured the land close to the stalks, and found the whole piece to contain 1 acre 2 1-125 rods. We then added one link in width around the whole piece, which would give 1 acre 4 182-625 rods, and this would give, after making a small deduction to make full measure, one hundred seven and a half bushels to one acre, errors excepted.

AMOS HUNTLEY.

Keene, N. H., Nov. 30, 1853.

The subscriber to the above statement, (Amos Huntley,) made oath that the statement is true.

Before me— T. H. LEVERETT, *Notary Public.*

This certifies that I assisted E. Blake in raising and harvesting the corn which he presents for a premium; also the pile of corn set apart to be measured is the same which grew on the estimated acre, which was measured, *no more nor less*, except two bushels and three pecks of the poor corn, which I fed out previous to the measuring.

ALFRED S. BLAKE.

Cheshire ss.—December 2, 1853.

Sworn to and subscribed before me,

GEO. F. STARKWEATHER, *Justice of the Peace.*

Mr. Brown's Statement.

Long Island, Winnipiseogee Lake, Oct. 5, 1853.

I would state to the committee on Crops that it must be conceded by the farming community that the cultivation of Indian corn is one of the most important crops cultivated, and to improve the manner of cultivation so that double the number of bnshels can be raised on an acre than is usually done, is of the greatest importance.

To make a minute statement of all my experience in the way of improvement heretofore made in raising Indian corn would make this article too lengthy. As I have wrote several articles on the cultivation of Indian corn, which have from time to time been published, I shall confine myself now to the manner of cultivation of my present crop. In September, 1852, it was broken up from sward land, which had lain to grass five or six years. Pretty early in the spring of 1853 I put on a coat of fine manure, and gave it a good harrowing, and the last of May I put on a good coat of green manure from the barn and hog yard, and plowed across the furrow, and smoothed down with a harrow. The quantity of manure put on to the acre was thirty-eight common ox-cart loads of about fifty bushels each. I then, on the thirty-first day of May, planted the acre in the following manner. I opened the rows three feet apart and the hills in the row two feet apart, making about six thousand five hundred hills in the acre, put four kernels in a hill, and at the first hoeing thin out to three stalks in each hill.

I will here state my manner of selecting seed, which is one great secret of improvement in raising Indian corn. I do not select the largest ears, I mean the largest in diameter; that tends to make the corn grow later; but I select ears that have the smallest cob, ears that hold a uniform bigness from the but nearly the whole length, and when the ears are suitable, from stalks that have two ears, but double ears will not always raise double ears.

I hoe my corn to subdue the weeds, without making any hill around the corn. This is another improvement, as hilling mate-

rially injures the roots of the corn. But no one can expect to have great corn without a sufficient quantity of manure, well applied. It is considered by farmers generally that eighteen or twenty loads of manure is a sufficient quantity for an acre; but I will state from my own actual experience that to double this quantity of manure on an acre the crop of corn will be double; I mean in favorable seasons; and if planted with corn the second year, without any manure, the crop will be about half what it was the first year, so that any one can see that by applying a sufficient quantity of manure the first year from the sward, they will get two noble crops of Indian corn, the most important crop to the farmer.

My corn the present season has had a very rapid and vigorous growth. In three months from planting the corn was completely filled and glazed, and is now standing with its golden ears bowing and nodding to the breeze with the greatest majesty and beauty. As I am having applications for considerable seed, I wanted it to stand in the field a little longer. I have made an estimate of the quantity of corn grown on one acre, which I have measured off, being fifteen rods long and ten and two-thirds rods wide. I have gathered one row, which would be as near an average as I could pick, and husked and weighed it as exact as I could, and had one hundred and eight and three-fourth pounds; there being eighty-five rows in the acre, and allowing seventy pounds for a bushel, would make one hundred and thirty-two bushels of shelled corn on the acre. This you may be assured is a pretty true estimate of the crop. I have respectfully submitted the above for your consideration. JOHN BROWN.

Additional Statement.

Long Island, Winnipiseogee Lake, Nov. 28, 1853.

To the committee on Crops:—I have written a full statement of the cultivation and management of one acre of Indian corn, called the Brown corn, and left it at Fair time with the Secretary, Mr. Adams. I also had at the Fair a specimen of twelve ears of the Brown corn, which grew on the acre, marked and labelled for exhibition. You will see by my statement that I had harvested

but one row, and calculating from that at that time there would be one hundred and thirty-two bushels of corn on the acre. The corn remained in the field after this until the very last of October, nearly one month of very drying weather, and then harvested, and the whole crop that grew on the acre was carefully husked and weighed, and the weight of all that grew on the acre was seven thousand three hundred and thirty-seven pounds. The corn when shelled weighs sixty pounds per bushel, the cobs that a bushel is shelled from weigh ten pounds, making seventy pounds for a bushel of shelled corn, and making one hundred and four and fifty-seven seventieths bushels of shelled corn on the acre, with about four tons of fodder, making nearly seven and three-fourths tons grown on one acre; which you will consider with the other statement which I made. JOHN BROWN.

R. W. and J. W. Currier's Statement.

Manner of Cultivation.—One-half of the acre was broken up last November, seven inches deep, the other half was old ground, planted last year with corn and potatoes. Spread on last year and harrowed in about eight loads of manure; say three parts of muck one part of summer and winter manure; put in the hill about one hundred pounds Peruvian guano. The season was so dry I think it did no good to my corn. I think I had better and more potatoes where I used the guano, say one bushel in seven. I put the guano in the hill unmixed, and covered it over half an inch with the same loam I dug out of the hill and then dropped the corn and covered it. I put in the hill about one glass.

Last April I carted on my acre twenty loads of manure, three parts muck and one part summer and winter manure, forty bushels to the load, spread over even as possible, plowed it in on the old ground seven inches deep, and harrowed it in on the new ground five or six times, harrowed the old ground twice. I planted my corn the sixth of May, three by three and a half feet, two-thirds eight rowed and one-third ten and twelve rowed corn; soak-

ed my corn in strong soap suds from twenty to thirty hours before planting. I covered my corn as soon as it was dropped, careful not to let it dry before covering. I put five kernels in a hill. When hoed the second time I thin it to four stalks to the hill. I put in the hill when planted about five loads, forty bushels to the load, of hog manure to the acre in the hill; hoed it all three times and part four times; at the second time hoeing put around each hill about one gill of ashes and lime, slaked, two-thirds ashes and one-third lime, well mixed together; used the cultivator the first and second time hoeing; make a flat hill; cut the staks when the corn turns hard.

Expense of Cultivation.

For plowing one acre,	$4 50
" harrowing,	2 00
" carting manure,	4 00
" spreading manure,	1 00
" planting and manuring in the hill,	5 00
" hoeing and cultivating,	7 00
" cutting stalks and housing,	3 00
" harvesting,	3 00
" husking,	4 50
" interest on land at $100 per acre,	6 00
" manure one-fourth of twenty-five loads,	6 25
	$46 25
Cr. By 81½ bushels at $1 per bushel,	$81 50
" stalks and buts,	12 00
	$93 50
	46 25
Leaving a balance of profit from the acre of	$47 25

Manner of making my Manure.—Soon after haying as convenient I draw into my barn-yard swamp muck, about twenty-five loads, and spread it even over the yard, and let it remain until spring, then I mix all my winter and summer manure together and draw it on my planting ground. I think it bad economy to move the manure in the fall.

Manner of making and preparing my hog manure for plant-

ing.—I draw into my hog yard five or six loads of muck to a hog soon after planting. I put all the weeds around the house and garden and waste dirt, and let my sink water and washing suds run into the yard from a gutter prepared for the purpose. In this way I make seven or eight loads from one hog. At planting I mix my hen manure with my hog, and sometimes my ashes. When I do not put it around my corn I mix it altogether, even as possible, about half a bushel hen manure to the load, about three bushels ashes, (unleached,) then put about five loads to the acre, (forty bushels to the load,) in the hill.

R. W. CURRIER,
JOHN W. CURRIER.

We, Reuben W. Currier and John W. Currier do hereby certify that the above statements by us subscribed are true.

Before me— J. E. STANYAN, *Justice of the Peace.*

Gen. Riddle's Statement.

Ground a good loamy soil; grown grass for ten years past; plowed in August, 1852, with one yoke of oxen and a boy thirteen years old, with a light plow; the furrow five or six inches deep. The first of May, 1853, spread on twenty-eight loads of compost manure, made of one half swamp muck and the other half barn-yard manure, mixed with one cord of leached ashes; the manure drawn in a cart holding forty bushels. May 15, 1853, spread the manure and plowed it in with a team of four oxen, the furrow ten inches deep, and harrowed. Furrowed three and a half feet apart and planted about the twentieth of May, with from four to five kernels of corn to the hill. The land was hoed three times, and about half a pint of leached ashes with a little applied to the hill after hoeing the first time. Corn harvested in October, and one hundred and forty-eight baskets of sound corn and ten baskets of soft corn were taken from the acre, with about fifty bushels of turnips. The ground was planted with pumpkins in the hill; had a good crop of vines but very few pumpkins.

Estimates of expense.

Plowing green sward,	$2 00
Cross-plowing in spring,	3 00
Four and one-third cords of manure at $3 per cord,	13 00
One cord of ashes,	5 00
One-fourth bushel of seed,	50
Top dressing,	4 00
Planting,	1 00
Hoeing three times,	3 75
Harvesting,	3 00
Interest on land,	6 00
Estimate of cost,	$41 25

Estimation of crops.	Cr.
74 bushels sound corn, weight 65 lbs. per bushel,	$74 00
5 bushels soft corn,	2 50
40 bushels turnips, 2s	13 33
2 tons of fodder, $8,	16 00
	$105 83
Dr. To labor and expense,	41 25
Balance in favor of crops,	$64 58
N. B.—Whereas the estimate above contains the whole expense of the manure, which ought not to be, as only about one-fourth of its value is expended in the above crop, which will leave about $15 for present benefit for the future crops,	15 00
Ballance,	$79 58

WILLIAM P. RIDDLE.

Nov. 24, 1853.

Hillsborough, ss,, Dec. 1, 1853.—Personally appearing the above named William P. Riddle made oath that the above statement, by him subscribed, is true.

JAMES O. ADAMS, *Justice of the Peace.*

STATEMENTS ON WHEAT.

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Mr. Morse's Statement.

Francestown, Dec. 10, 1853.

To Dr. T. R. Crosby, chairman of the committee on Wheat —Dear Sir:—I presented a specimen of my blue-stem winter wheat, for competition and a premium, if considered worthy.

The land on which my wheat grew, cut, in July, 1852, twelve or fifteen hundred of hay. In August I plowed the ground eight inches deep, turning the furrows flat as possible, put on a heavy roller and rolled the furrows length and crosswise; in a day or two I put on a light harrow lengthwise the furrow, till the ground was well pulverized. I then spread twelve cart loads yard or compost manure. I then put on a heavy, sharp toothed harrow, length and crosswise the furrow, till the manure and surface soil were well mixed. I then prepared my seed by washing in salt pickle and steeping in it over night, and drying it with dry slaked lime. The first of September I sowed one bushel and a half of wheat on one acre of ground, by measure. I then harrowed the ground length and crosswise the furrow, till smooth and even, then put on the roller to finish.

July 25, 1853, reaped my wheat and got into barn in fine condition; threshed with threshing machine, and carried the wheat into corn-barn, and there measured by one of my neighbors. The number of bushels was 32 and 26 quarts of clean wheat, such as the sample presented at the Fair.

Yours with respect,

MARK MORSE.

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Mr. Craig's Statement.

To the committee on Grain Crops—Gentlemen:—I have entered one acre of winter wheat for premium. My land, one acre and forty-one square rods, where I raised my winter wheat

this year, was broke up in the fall of 1851; eight inches deep in the spring of 1852. I spread twenty-four loads of green manure; the manure was drawn out and laid in three heaps, and remained in that position till it began to heat. I then laid it out in small heaps for spreading. I then spread and cultivated it in as soon as possible, and planted about one acre of the piece with corn, and the remainder with potatoes, using eleven loads of old fine manure in the hill, making thirty-five cart loads in the whole—cart holding thirty bushels to a load. I had a good crop of corn and potatoes. I harvested the corn and potatoes in September. I then plowed the ground as deep as before, and harrowed it well. I then plowed it again and harrowed it; then sowed two and a half bushels of wheat, and harrowed it in well, and rolled with a heavy roller. The wheat was sown the 20th of September. It got ripe the last of July, and I cut it, and the last of August I had it threshed, and it yielded thirty-seven and a half bushels. I think the wheat was better where the corn grew than where it was planted with potatoes. My land is near the Contoocook river. This piece had been mowed six years. The soil is what some call pine plain. I have dug up quite a number of pitch-pine stumps from said piece for the last fifteen years. I find some parts of it a clayey bottom, other portions a coarse gravel loam; the gravelly parts suffer by severe droughts.

JOHN S. CRAIG.

Henniker, Oct. 5, 1853.

We, the undersigned, hereby certify that at the request of John S. Craig of Henniker, we have measured the piece of land where said Craig raised his winter wheat this year, and said piece contains, by measure, one acre and forty-one square rods.

NATHANIEL J. NOYES,
SQUIRE DOW.

Henniker, Oct. 5, 1853.

Merrimack, ss., Oct. 5, 1853.—Then the above named Nathaniel J. Noyes and Squire Dow appeared and made oath that the above certificate by them subscribed is true.

Before me—JOHN S. CRAIG, Justice Peace.

I hereby certify that I assisted John S. Craig of Henniker in threshing and measuring up his winter wheat, and he had thirty-seven and a half bushels of wheat.

NATHANIEL J. NOYES.

Merrimack, ss., Oct. 5, 1853.—Then the said Nathaniel J. Noyes appeared and made oath that the above certificate by him signed is true.

Before me—JOHN S. CRAIG, Justice Peace.

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MR. SMITH'S STATEMENT.

This certifies that I harvested from two acres and forty-six rods of ground, sixty-two and three-fourths bushels of winter wheat, a mixture of red and white chaff Ohio Flint, sowed on ground that was in corn the season of 1852, on which about forty small loads per acre of barn manure was spread and plowed in deep, say eight or ten inches. Wheat sowed 20th of September. Ground prepared by passing over it a two-horse cultivator, before and after sowing the wheat, then the harrow. Harvested and housed between 20th and 25th of July, threshed Sept. 27, by Daniel Fox, as stated by his certificate. Weight per bushel, sixty-two pounds. Ground measured by Col. Ashbel Smith. There was a plain difference in the apparent yield of the crop on one acre from the average as stated by Col. Smith. All which is respectfully submitted.

ASAHEL SMITH.

Hanover, Dec. 26, 1853.

This certifies that I measured a piece of ground on which winter wheat was grown last summer, owned by Asahel Smith, from which the above mentioned crop was harvested, and the actual measure was two acres and forty-six rods; and we hazard nothing in saying that a portion of the ground being a hard, dry ridge, which was much affected by drought, and another part that was winter killed, that the best acre produced at least from one-fourth to one-third more wheat than the average.

ASHBEL SMITH.

Hanover, Dec. 26, 1853.

This certifies that on the 27th of September last, I threshed for Asahel Smith of Hanover, fifty-five and one-half bushels of wheat, and that he and his son, C. P. Smith, said they had top-threshed from what went through the machine, seven and one-fourth bushels, which would have made sixty-two and three-fourths bushels. DANIEL FOX.

Hanover, Dec. 10, 1853.

Mr. Hutchinson's Statement.

Field No. 1 contains 284 rods; 140 rods of this I sowed Sept. 1, 1852, with one bushel eight quarts "White Flint Bald Wheat." The previous crop was winter wheat, the stubble of which was plowed in Aug. 25, 1852, amount of crop, twenty bushels and four quarts. Soil a coarse loam.

The remainder of Field No. 1 was sowed Sept. 2, 1852, with one bushel and eight quarts "White Flint Bearded Wheat." Previous crop was grass, which I broke up Aug. 26, 1852, eight inches deep, on which I spread ten loads of barn-yard or stable manure, thirty bushels to the load—harrowed in. This piece produced twenty-one bushels and eight quarts.

Whole produce of Field No. 1, forty-one bushels and twelve quarts.

Field No. 2 contains 167 rods. The previous crop was corn and potatoes. Manured with twenty-nine loads of stable manure, thirty bushels to the load. The corn was taken off and shocked, and the land plowed 13th of Sept., 1852. On the 15th of Sept., 1852, I sowed on this piece one and one-half bushels of "Red Chaff Winter Wheat," which produced thirty bushels.

Field No. 3 contains 240½ rods. On 42½ rods of this the previous crop was clover hay, taken off July 1. The land was plowed Aug. 28, 1852, and sowed with one-half bushel "Red Wheat," which produced nine bushels.

The remainder of the field, 198 rods, produced a previous crop of corn; was manured with twenty-eight loads of manure, thirty bushels to the load. The land was sown Oct. 8, 1852,

with one bushel and three pecks of "Red Chaff Wheat," which produced twenty-seven bushels and twelve quarts. Quality of soil, yellowish loam.

STILLMAN HUTCHINSON.

Hillsborough, ss., Aug. 12, *A. D.* 1853.—Personally appearing, Stillman Hutchinson made oath that the above statement by him subscribed is true.

Before me—O. W. LULL, Justice of the Peace.

Field No. 1.

Use of land,	$20 00	
Once plowing,	4 50	
Manure, ten loads,	8 00	
Twice harrowing,	1 00	
Sowing,	75	
Cultivating after sowing,	75	
Reaping and binding,	4 50	
Threshing and cleaning,	4 00	
Two and a half bushels of seed, at $1,	5 00	
Interest on land,	1 20	
		$49 70

Value of Crop.

41 bushels and 12 quarts, at $2,	$82 75	
Two tons straw,	16 00	
		$98 75
Net profit,		$49 05

Field No. 2.

Use of land,	$12 00	
Once plowing,	2 00	
Twice harrowing,	75	
Sowing.	50	
Reaping and binding,	3 92	
Threshing and cleaning,	3 00	
One and a half bushels seed,	3 00	
Interest on land,	72	
		$25 89

Value of Crop

30 bushels wheat, at $2,	$60 00	
One and a half tons straw,	12 00	
		$72 00
Net profit,		$46 11

Field No. 3.

Use of land,	$16 00	
Once plowing,	3 00	
Twice harrowing,	1 00	
Sowing,	75	
Reaping and binding,	4 50	
Threshing and cleaning,	3 50	
Two and one-fourth bushels seed,	4 50	
Interest on land,	96	
		$34 21

Value of Crop.

36½ bushels wheat, at $2,	$73 00	
One and three-fourths tons straw,	14 00	
		$87 00

Net profit,	$42 79
Profits of No. 1,	49 05
" No. 2,	46 11
Profits of the three fields,	$137 95

STILLMAN HUTCHINSON.

Hillsborough, ss., Oct. 4, 1853.—Sworn to before me,
O. W. LULL, Justice of the Peace.

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COL. GLIDDEN'S STATEMENT.

Gentlemen:—The soil is a deep, gravelly loam, resting on a subsoil inclined considerably to a clayey nature. I plowed said land in the autumn of 1850, which had been stocked to grass eight years; sowed with oats the first of May, 1851, raised fifty and one-half bushels on said piece. After the oats were harvested, put forty loads of manure upon the oat stubble, (the cart holding thirty bushels,) plowed it in seven inches deep, harrowed twice. May 15, 1852, plowed said piece again, harrowed once, planted with corn the 20th of May, hoed three times, and raised one hundred and fifty bushels of ears of corn. The first of May, 1853, plowed said ground once crosswise of the corn rows, harrowed once, sowed one and a half bushels of Black Sea wheat on said piece; harrowed twice. The wheat grew rank,

and when in the milk, we had a shower from the south, with a heavy wind, which laid the wheat flat on the ground. Soon after, the wind blew from the northwest, which raised most of it part way up, which is the cause of the kernel being pinched. I sowed the first of May, and harvested the middle of August. There was no manure of any kind put upon said piece after plowing in 1850, except what was put upon the corn-field. The result was, I raised thirty-one bushels and nineteen quarts of wheat on one acre and six rods of land, as certificates show.

EZRA J. GLIDDEN.

Unity, Nov. 15, 1853.

Expenses of Cultivation.

Plowing once and sowing,	$2 00
Harrowing three times,	75
Harvesting,	3 00
The straw will pay for threshing,	
Interest on land, at $40 per acre,	2 40
One-fourth of forty loads of manure,	10 00
One and a half bushels of wheat,	1 88
	$20 03

Cr. By 31 bushels and 19 quarts of wheat,	$39 49
Leaving a net profit of	19 46

This certifies that I have measured the ground where E. J. Glidden raised his Black Sea wheat this season, with Thomas J. Pooley, and helped clean the wheat that grew on said land, with said Pooley. The land measured one hundred and sixty-six rods, and the wheat that grew on the same measured thirty-one bushels and nineteen quarts.

ELISHA GLIDDEN.

Unity, Nov. 14, 1853.

This certifies that I have worked for E. J. Glidden seven months, and have measured the ground where E. J. Glidden raised his Black Sea wheat this season, with Elisha Glidden, and helped sow, harvest and thresh the same; also helped clean the same with said Elisha Glidden. The land measured one hun-

dred and sixty-six rods, and the wheat that grew on said land measured thirty-one bushels and nineteen quarts.

THOMAS J. POOLEY.

Unity, Nov. 14, 1853.

STATEMENT ON RYE.

Mr. Porter's Statement.

This piece of rye was put in upon a new lot of land in the fall of 1852. The year previous the wood and timber was got off. During July and August of 1852 the bushes were cut down, all the rotten wood dug up to dry, and the lot put in the best condition for burning. On the 13th August, 1852, the lot was burnt over. It was very dry at the time, and the fire made clean work, burning up almost everything, so that the after picking up was much less than usual. I commenced sowing about the 1st of September, and finished before the 20th. The whole amount sown was fifteen acres, and about a bushel to the acre. The ground was harrowed three times, in different directions. The harvesting cost more than fifty days labor. I had several acres much heavier than the one here offered, but no acre so near a square or so accessible as this was, upon one side of the lot. I have not yet threshed the remaining rye, but am fully of the belief that the whole piece will average nearly as much as the acre offered. The land was not plowed nor any way improved, except by burning the brush and rotten wood upon it. I sowed with the rye, clover, timothy and brown top seed, designing the lot for pasture. The grass, when harvesting the rye, was knee high. The growth of wood upon the lot consisted of white and yellow pine, oak, maple and ash, yielding probably one hundred and thirty or forty thousand of pine logs, and about three hundred and fifty or seventy-five cords of wood.

The rye weighs sixty-four pounds to the bushel.

GEORGE PORTER.

P. S.—I began reaping the rye the 11th July, and finished the 20th. G. P.

The undersigned, Richard Arnold, assisted in burning and putting in a piece of rye for George Porter, in the months of August and September, 1852, upon said Porter's farm in Manchester, in the county of Hillsborough, and State of New Hampshire. The undersigned also helped reap and house one acre of said rye, measured off by the undersigned and David George, ten and two-thirds rods by fifteen rods, upon which there were forty stacks.

his
RICHARD × ARNOLD.
mark.

Witness—I. S. PORTER.

Hillsborough ss.—September 27, 1853.

Personally appeared the above named Richard Arnold and made oath that the statement above made by him is true.

Before me— ARCH'D GAMBLE,
Justice of the Peace.

The undersigned, Bradstreet Doe, measured the rye threshed from the foregoing named acre, and made the same twenty-eight bushels and eighteen quarts.

BRADSTREET DOE.

Hillsborough ss.—September 27, 1853.

Personally appeared the above named Bradstreet Doe and made oath that the above statement by him made is true.

Before me— ARCH'D GAMBLE,
Justice of the Peace.

The foregoing facts, stated by Richard Arnold and Bradstreet Doe, are true to the best of my knowledge and belief.

GEORGE PORTER.

Hillsborough ss.—September 27, 1853.

Personally appeared the above named George Porter and made oath that the above statement by him made is true.

Before me— ARCH'D GAMBLE,
Justice of the Peace.

STATEMENTS ON BARLEY.

Gen. Riddle's Statement.

Manner of Cultivation, and Soil.—Grown on good loamy soil; has been cultivated for eight years, with about five cart loads of compost manure per acre; cart-body measuring forty bushels, and raised hops upon. 1st of May, 1853, the hops plowed up and the roots removed, and plowed twice after the roots of hops were removed. Harrowed and sown with barley about the 15th of May, and sown down to grass. About six cart loads of compost manure, made of swamp mud and barnyard manure applied to the acre; about half of each. Two bushels of four rowed barley was sown per acre, and six pounds of clover seed and one-half bushel herds grass seed per acre. The crop of barley was mowed and taken into the barn about the 25th of July. The crop produced thirty-eight bushels barley, weight fifty-two lbs. per bushel. The grass crop caught extremely well, about double of that sown the same time with oats.

Value of Barley.

38 bushels, 6s. per bushel,	$38 00
Value of straw,	2 00
	$40 00

Expense of Cultivation and Seed.

Two bushels barley sown,	$2 00	
One acre plowed twice,	2 00	
Sowing and harvesting,	75	
One-quarter part of six loads compost manure, valued at $1 per load, (remainder for future crops,)	1 50	
Threshing and harvesting,	3 00	
		9 25
Balance,		$30 75

Interest for use of land will be offset in betterments made for future crops. The balance of $30 75 in favor of the crop.

WILLIAM P. RIDDLE.

Hillsborough ss.—December 1, 1853.

Personally appearing William P. Riddle made oath that the foregoing statement by him subscribed is true.

JAMES O. ADAMS, *Justice of the Peace.*

R. W. & J. W. Currier's Statement.

Manner of Cultivation.—Sowed my barley the 18th April, on old ground, which was planted last year (1852,) with corn and potatoes, three-fourths corn, one-fourth potatoes. Spread on and put in the hill last year about twenty loads of manure, (forty bushels to the load,) three-fourths muck, one-fourth cattle and hog manure, with some ashes. Last spring plowed once and sowed two and a half bushels barley to the acre. Did not manure it any this year. Harrowed once before sowing and once after, and then sowed three per cent. herds grass seed and twenty lbs. clover seed; then brushed it over; sowed barley dry, not soaked. Cut the barley 23d July.

Expense of Cultivation.

For plowing one acre,	$3 00
Two and a half bushels barley, at 6s.,	2 50
Sowing and harrowing,	2 25
Cutting and housing,	2 25
Threshing and cleansing,	2 00
Interest on land, $75 per acre,	4 50
One-fourth of twenty loads of manure, last year,	5 00
	$21 50
Cr. by thirty-five bushels barley, at 92 cts.,	$32 20
" by straw,	9 00
	$41 20
	21 50
Profits from one acre,	$19 70

The above respectfully submitted for your consideration.

R. W. CURRIER,
JOHN W. CURRIER.

We, Reuben W. Currier and John W. Currier, do testify and say that the above statement by us subscribed is true.

Before me— J. E. STANYAN, *Justice of the Peace.*

STATEMENT ON OATS.

Mr. Marsh's Statement.

Soil, loam, on a hard-pan subsoil; previous crop, corn; plowed from five to six inches deep; was plowed and cross-plowed in the early part of April, and sown in the second week in April; no manure this season; quantity of seed sown three and three-fourths bushels, nearly, per acre; harvested about the tenth of August, with the cradle mostly, a few by the road side with the sickle; threshed by hand about September twenty-second; yield on the acre seventy-eight bushels, weighing per bushel thirty-eight pounds. No extra labor or expense to produce the crop, which was diminished to some extent by the depredations of the grass-hoppers. The seed was from oats obtained from the Patent office, and are called here Irish oats. The land descended to the southeast and was somewhat affected by the drought in June and July. The grain, generally, was not lodged at all. Under some small trees and by the road side it was somewhat lodged. There were over forty young apple trees on this acre.

EDMUND A. MARSH.

Walpole, Dec. 23, 1853.

Cheshire, ss., Dec. 23, 1853.—Subscribed and sworn to before me— FREDERICK VOSE, *Justice of the Peace.*

STATEMENT ON BUCKWHEAT.

—

Mr. Fletcher's Statement.

Derry, Nov. 28, 1853.

Gentlemen, committee of State Agricultural Society on Grain Crops—Sirs:—I herein give you a statement of my crop of buckwheat, a sample of which I offered for your examination at the State Fair in October last. The piece of land on which it was raised contains by survey one and three-eights of an acre. The quantity of grain was twenty eight bushels. The weight of the buckwheat was fifty pounds per bushel. This crop of buckwheat was grown on old worn out grass land, which has produced but very little grass for years. Not any manure was used. The land was plowed and sown on the twenty-seventh and twenty-eighth of June. I estimate the expense of labor in growing and harvesting this crop at seven dollars. Value of the grain this year twenty-eight dollars.

Respectfully submitted,

JOHN L. FLETCHER.

TREASURER'S

Dr. New Hampshire State Agricultural Society in account Smyth, Treasurer,

1853, Sept. 1.—To cash paid as follows, viz:—

On premium accounts for 1851, as per receipt book,		(A.)	$7 00
" " " 1852,	"	" (B.)	1100 00
For silver ware premiums, as per vouchers,	1 to 3,	(C.)	105 25
" premium books, badges and stationery, as per vouchers,	4 to 12,	(D.)	110 64
" printing, "	13 to 19,	(E.)	195 93
" postage, express and expenses, "	20 to 26,	(F.)	191 66
" rent of fair grounds, "	27 to 29,	(G.)	51 00
" teaming and trucking, "	30 to 35,	(H.)	52 95
" forage and provisions, "	36 to 41,	(I.)	437 92
" lumber and materials, "	42 to 45,	(J.)	276 30
" labor, "	46 to 91,	(K.)	495 57
" police, "	92 to 94,	(L.)	187 55
" publishing transactions, "	95 to 102,	(M.)	347 23
" music, "	103,	(N.)	100 00
" miscellaneous expenses, "	104 to 105,	(O.)	27 50
" rent of tents, "	106,	(P.)	240 00
			3,906 50
Cash in the Treasury,			1,175 25
			$5,081 75

REPORT.

current, from Sept. 1, 1852, *to Sept.* 1, 1853, *with Frederick*
Cr.

1853, Sept. 1.—By cash received, as follows, viz:—

For badges of membership and entrance fees to the Fair, October, 1852,	$2,602 15
From citizens of Meredith Bridge,	576 14
For rent of grounds,	167 50
From George W. Nesmith, towards life membership,	5 00
" Dixi Crosby, " "	5 00
" Stephen Brown, " "	3 00
In the Treasury, Sept. 1, 1852,	1,722 96
	$5,081 75

FREDERICK SMYTH, Treasurer.

I have examined the foregoing accounts, and found them correctly cast and fully vouched.

DANIEL CLARK, Auditor.

October 4, 1853.

(A.) *Cash premiums of* 1851, *as per receipt book.*

Humphrey Moore, Milford, on Indian corn,.....$7 00

(B.) *Cash premiums of* 1852, *paid as per receipt book.*

Peter Mitchell, on vegetables,.....$6 00
R. G. Lewis, " 4 00
Cyrus T. Lane, on carrots,.....2 00
S. H. Williams, on cabbages,.....2 00
Matthew Holmes, on onions,.....2 00
Ebenezer Eastman, on pumpkins,.....2 00
Joseph Marshall, on tomatoes,.....2 00
Benjamin Jewett, on beets,.....2 00
S. Roberts, on parsnips,.....2 00
Charles Hanson, on potatoes,.....2 00
Wm. Haile, on quinces,.....3 00
Daniel Dow, " 2 00
John T. Coffin, on grapes,.....3 00
Peter Mitchell, on melons,.....3 00
James H. Diman, on peaches,.....4 00
Abel Conner, " 3 00
O. Pinneo, on plums,.....3 00
Isaac Whittemore, on cranberries,.....3 00
J. S. Thompson, on apples,.....4 00
O. Pinneo, " 3 00
Charles Colby, " 4 00
David Clement, " 3 00
W. H. Sanders, " 4 00
Joseph Pinneo, " 3 00
S. C. Lyford, on pears,.....4 00
Wm. Ramsdell, " 3 00
Daniel Dow, on bull,.....12 00
Cyrus K. Flether, " 12 00
Ebenezer Eastman, " 8 00
S. Rand, " 8 00
James M. Whiton, " 7 00
Richard Neal, on bull calf,.....5 00
" " on cow,.....10 00
Joses Moulton, " 8 00
J. P. Morrison, " 10 00
Simeon Wadleigh, " 8 00
J. M. Bean, on heifers,.....8 00
Ebenezer Eastman, on heifer,.....6 00
Isaac N. Sawyer, " 8 00

James M. Whiton, on heifers,	$6 00
Belknap county, on oxen,	40 00
Grafton " "	30 00
Merrimack " "	20 00
Town of Keene, "	20 00
" Haverhill, "	15 00
" Meredith, "	10 00
Andrew H. Towne, "	12 00
Hiram Colby, "	9 00
W. H. Wadleigh, "	6 00
Town of Gilmanton, on steers,	15 00
Town of Unity, "	12 00
" Meredith, "	8 00
J. M. Bean, "	6 00
E. J. Glidden, "	8 00
E. O. Bean, "	6 00
Isaac Leavitt, "	5 00
W. J. Durgin, "	3 00
Moses Pickering, "	6 00
Isaac Leavitt, on fat cattle,	8 00
John H. Durgin, "	6 00
J. B. Durrell, "	4 00
E. J. Glidden, "	6 00
Lewis Perry, on horses,	20 00
John B. Bailey, "	15 00
Lyman W. Webster, on horse,	10 00
J. D. Hidden, "	15 00
P. Brown, "	10 00
John F. Neally, "	10 00
Samuel Tilton, "	7 00
Leonard Gerrish, "	10 00
Wm. Haile, "	7 00
Greenleaf Clarke, "	8 00
Stephen Brown, "	3 00
S. G. Berry, "	8 00
Joseph Sweatt, "	6 00
Nath'l Boynton, "	8 00
John Wadleigh, "	5 00
J. B. Elliott, on mules,	6 00
J. A. & E. T. Miller, on sheep,	18 00
George Slow, "	46 00
I. N. Sawyer, "	16 00
George Dewey, "	8 00
John Chapman, "	6 00
Hiram French, "	4 00

J. B. Durrell,	on sheep,	$6 00
Charles Wadleigh,	"	4 00
J. M. Bean,	"	6 00
William Parker, on swine,		18 00
James M. Whiton,	"	14 00
Henry Shaw,	"	6 00
H. H. Kimball,	"	4 00
J. S. Elliott, on plowing,		10 00
A. Burbank,	"	8 00
S. Mugridge,	"	5 00
Hiram Colby,	"	10 00
E. W. Burbank,	"	8 00
W. H. Smith,	"	5 00
Ephraim Wood, on cheese,		6 00
Samuel Wood,	"	5 00
Danforth Rice, on honey,		5 00
D. W. Bill, on sugar,		5 00
Orrin Head, on chaise,		7 00
George Kenney, on wagon,		7 00
N. C. Tilton,	"	5 00
Geo. W. Shepherd, on sleigh,		5 00
Harris & Hutchinson, on cassimere,		8 00
" "	on doeskin,	8 00
Portsmouth Steam Mill, on lawns,		5 00
John A. McClure, on blankets,		4 00
J. K. Wilkinson, on flannel,		4 00
Wm. Kelsea, on woolen cloth,		4 00
D. W. Bill, on kersey,		4 00
Mrs. D. W. Fling, on linen thread,		2 00
J. A. Potter, on sewing silk,		5 00
Mrs. D. W. Fling, on linen hose,		2 00
Polly Wilson, on woolen yarn,		2 00
Mary H. Sanborn, on hose,		4 00
J. P. Kimball, on gloves,		2 00
J. F. Taylor, on hose,		2 00
Mrs. McDougall, on bonnets,		5 00
Miss Sarah M. Merrill, on bread,		6 00
Mrs. Richard Bartlett,	"	4 00
Mrs. A. L. Webster,	"	5 00
Miss Susan B. Moulton,	"	4 00
Bryant & Jenness, on furniture,		10 00
Cyrus Hill, on hats and furs,		10 00
Hartshorn & Tuttle, on stoves,		7 00
Cole, Davis & Co.,	"	10 00
Orrin Head, on chaise harness,		3 00

J. D. Johnson, on harnesses,	$9 00
George Kenney, on whips,	3 00
R. G. L. Bartlett, on overcoat,	5 00
S. F. Redfield, on dress coat,	5 00
Mills & Lewis, on boots and shoes,	7 00
Samuel Dudley, "	5 00
J. J. Morrill, on leather,	3 00
Ward & McQuesten, on gloves,	5 00
Josiah Clark, on boots,	3 00
Claremont Cutlery Co., on cutlery,	10 00
Dunlap & Parker, on silver ware,	10 00
James Whitcher, on wooden ware,	4 00
Porter Blanchard, on churn,	2 00
S. W. Sanders, on tin work,	5 00
Abbott, Jenks & Co, on printing,	3 00
Joseph Marshall, on binding,	5 00
Andrew McFarland, on essay,	10 00
H. O. French, on poultry,	6 00
Thadeus Cathrin, on "	3 00
G. T. Sanborn, on ducks,	3 00
G. L. Folsom, on "	3 00
N. Blanchard, on geese,	3 00
R. W. Currier, on fowls,	3 00
Mrs. C. P. Towle, on needlework,	8 00
Miss Ellen Hampson, "	5 00
Mrs. E. C. Foster, on counterpane,	2 00
Miss Ellen Hampson, on embroidery,	3 00
Mrs. C. P. Towle, on wrought chair,	2 00
	$1100 00

(C.) *Silver Premiums.*

H. H. Ladd,	$92 50
Young, Coffin & Co.,	12 75
	$105 25

(D.) *Premium Books, Badges and Stationery.*

Wm. H. Fisk,	$16 27
Wm. Young,	2 88
J. C. Moulton,	3 48
Dobles & Baker,	6 87
P. K. Chandler,	6 53
W. McDougall,	12 09

M. T. Gates,	9 63
F. Smyth,	47 52
H. E. & A. M. Mitchell,	5 37
	$110 64

(E.) *Printing.*

R. Andrews,	$45 00
R. C. Stevens,	8 25
James O. Adams,	124 00
Emerson & Wortman,	6 00
Young & Brewster,	5 00
Abbott, Jenks & Co.,	5 18
Campbell & Gilmore,	2 50
	$195 93

(F.) *Postage, Express and Expenses.*

James Hersey, postage,	$17 61
Cheney & Co., express,	10 61
Cheney, Langdon & Co., express,	2 25
F. Smyth, expenses,	71 57
" "	9 62
John S. Walker, expenses,	80 00
	$191 66

(G.) *For Fair Ground.*

O. R. Dinsmore, Meredith Bridge,	$25 00
Stephen Perley, " "	16 00
David Bowman, " "	10 00
	$51 00

(H.) *Teaming and Trucking.*

E. B. Lawrence,	$5 00
Samuel Thompson,	33 45
J. E. Little,	5 00
B. F. Chapman,	4 00
Hill & Cheney,	2 50
E. J. Drake,	3 00
	$52 95

(I.) *Forage and Provisions.*

Pitman & Tilton,	$299 17
Daniel Ames,	1 00
Daniel G. Ladd,	6 67
E. A. Farley,	115 00
J. P. Lawrence,	1 33
John Tilton,	4 00
C. A. Osgood,	10 75
	$437 92

(J.) *Lumber and Materials.*

Charles Lane,	$158 72
L. G. Folsom,	43 90
Gale & Co.,	4 86
H. J. French,	66 82
John Chapman,	2 00
	$276 30

(K.) *Labor.*

G. W. Burley,	$7 00
Samuel Perkins,	2 50
Levi M. Sanborn,	3 00
W. T. Batchelder,	2 00
F. Beutis,	8 25
B. W. Jewett,	3 00
George Garman and others,	2 50
Daniel Johnson,	10 50
Wm. Johnson,	2 50
Edward Bacon,	37 00
Nathan Clay,	5 50
John Clay,	50
Samuel Keith,	15 00
John L. Keasor,	7 50
Amos Jenness,	2 70
Luther Taylor,	2 50
Sanborn Stevens,	45 33
John J. Manning,	3 25
D. G. Drake,	5 00
J. T. Weeks,	3 00
Newell Tilton,	16 00
D. M. Fisk,	4 00

James S. Anderson,	5 00
S. W. Sanders,	4 23
Benjamin Sanborn,	15 00
E. A. Nurse,	16 30
E. Keasor,	10 00
Jeremiah Langley,	7 50
J. F. Clough,	10 00
F. A. Brown,	12 00
W. B. Webster,	13 25
Wm. Craig,	2 35
John C. Young,	5 00
John Rowe,	4 00
John L. Kelley,	9 25
H. G. Lowell,	10 00
C. F. Walker,	6 70
Daniel Clark,	2 00
Samuel Mugridge,	56 39
J. T. Coffin,	29 67
J. A. Stearns,	6 35
F. B. Eaton,	14 00
E. Robinson,	7 25
John T. Coffin,	36 80
	$475 57

(L.) *Police.*

Bartlett Hill,	$169 10
D. Randlet,	8 45
Wm. H. Hill,	10 00
	$187 55

(M.) *Publishing Transactions.*

Butterfield & Hill, printing extra copies,	$122 00
T. R. Crosby, for writing,	35 00
James O. Adams, for compiling and expenses,	125 00
B. W. Thayer & Co., for engraving,	40 00
B. F. Eaton, for drawing,	3 50
F. Gleason, for engraving,	20 00
Concord Railroad, freight,	1 73
	$347 23

(N.) *Music.*

Meredith Band,	$100 00

(O.) *Miscellaneous Expenses.*

W. S. King,	$25 00
Warren Perley,	2 50
	$27 50

(P.) *For Tents.*

R. M. Yale,	$240 00

FRENCH MERINO BUCK.

ESSAYS AND COMMUNICATIONS

WRITTEN FOR THE

N. H. STATE AGRICULTURAL SOCIETY.

EROSION IN NEW HAMPSHIRE.

The condition of Trap Dikes in New Hampshire an evidence and measure of Erosion; by OLIVER P. HUBBARD, *M. D., Professor of Chemistry, Mineralogy and Geology in Dartmouth College.*

[This article was originally published in the Americal Journal of Science and Art, vol. 9. In compliance with the request of the Secretary, Prof. Hubbard has communicated it to the Society for publication in the Transactions.—*Secretary.*]

In New Hampshire, whose geology is characterized chiefly by primary rocks and metamorphic slates, trap dikes are exceedingly numerous, and they have an evident relation both in position and character to those of the adjoining States. Among them all, none have yet been described, (perhaps not observed,) that are eminent at all above the rocks enclosing them; and there is only one place where the bulk and prominence of the trap is such as to indicate a centre of elevation, or greater resistance to erosion, than in the adjacent rock. This is the most northern of the peaks of Ossipee Mountain, east of Lake Winnipisiogee; it is described as "an isolated, bare, precipitous range of bluish greenstone rock," and abundant fragments are found on the adjoining peak, covering the gneiss. From this point as a centre, series of dikes seem to radiate in various directions; one group east of Red Hill, ranging north 60 or 70 deg. west, and varying from one to three or four feet in width; another similar one, west of Red Hill, near Squam Lake, from one inch to ten feet wide, ranging east and west. "These dikes are distinctly marked over the surface of the granite including

them. They have been worn and polished by the action of diluvial currents, so that a level and smooth surface, comprising many thousand square feet, lies entirely bare of soil."*

In volume 34 of this Journal, (p. 105,) I have described a number of trap dikes, presenting the same relations to the enclosing rock, and without doubt there are hundreds of instances of the kind in New Hampshire and Vermont; and they are found at all levels, and continuous for considerable distances. The present condition of these dikes is, obviously, evidence of more or less erosion. I propose to cite in this paper examples of trap dikes in New Hampshire and vicinity, which shall show how far they are evidences and measures of erosion, whether ancient or recent.

The trap in New Hampshire occurs in relation to the surrounding rocks either—1. *Worn off smooth and plane with the adjacent rock;* whether the surface be horizontal or inclined. 2. *Below the surface,* when in a state of decomposition, and forming, it may be, the channel of a stream—3. *Prominent above,* as at the peak of Ossipee, and when forming an occasional barrier of a stream, where the surrounding rock has been removed.

There are believed to be very few instances of the third condition. Bear Camp river is crossed by a dike one to two feet wide, which forms a barrier, the granite having decayed away. There may possibly be an instance in Red Hill, where the dike is exposed on one (the lower ?) side by the removal of the granite.†

(*a.*) Of the second kind, there is an example in the rear of‡ the Willey house, referred to by Mr. Lyell in his second tour, and described by me previously in vol. 34 of this Journal. The trap is the bed of a small mountain torrent, in some parts decomposing, in others very hard. This dike was traced this season (June, 1849,) by some members of our party,§ along a continuous and deep channel far up the mountain, which is fringed with a vivid green of deciduous shrubs, that mark the water

* Geology of New Hampshire, p. 72.
† American Journal of Science, vol. 34, p. 113.
‡ Ibid, p. 111.
§ Members of the Senior Class in Dartmouth College.

courses in the mountains. As there must have been a time when the channel had no existence, and the trap filled it, up to the plane of the mountain, the formation of the water course may fairly be attributed to the decomposition of the dike, and the *depth* of the channel is evidently a measure of the erosion.

(*b.*) The "Flume," in the "Franconia Notch," is a deep chasm ten to sixteen feet wide, "having mural precipices of (very hard) granite on each side," forty to sixty feet high, while a mountain torrent rushes through it at high water. I saw it last June, after a severe drought of some weeks; there was but little water, and no difficulty in ascending it with occasional wading, and climbing over the large angular and rounded rocks in the way: The direction of the channel is north 80 deg. east. At its lower end on the right hand is a trap dike, in several distinct lines, each a few inches wide, mounting high in curved plates in the side of the cliff; farther on they decline and coalesce into *one* dike twenty inches wide, which passes under the water.

The dike crosses the fissure obliquely at about N. 75 deg. E., and is seen some rods farther up the stream in a vertical section extending to the top of the opposite bank.

The trap where constantly wet is softened and decomposing, and above, on the sides, is compact, very much fissured and stained deep with oxyd of iron. This fissure, like the former, must be admitted to have been filled by the intrusion of trap, and to have become a water channel by the removal of the dike; the channel, therefore, is some measure of the erosion of the trap and its rocky enclosures by existing agency.

(*c.*) The description given in the Geology of New Hampshire of the beautiful Dixville Notch, in the northern part of the State, suggests similar conclusions.

"The summit of the (new) road (passing through the Notch to Portland, Me.,) is 835 feet above the plain of Colebrook. The direction of the pass is N. E. and S. W., and it is walled on both sides by towering ledges and pinnacles of mica slate, which stand nearly vertical, dipping to the N. W. 80 deg., and attain an elevation of 600 to 800 feet from the road"—of course

about 1600 feet above Colebrook; and the Notch is parallel to the direction of the strata, which clearly have been removed on this line. Can we discover any disturbing agency or predisposing cause for this depression, from the summit of which the streams flow either way into the Androscoggin and the Connecticut? We learn that "dikes of basaltiform trap intersect the strata near the middle (summit?) of the Notch, and large loose blocks of it are seen in abundance on its north-west side. It contains very large crystals of basaltic hornblende and glassy white feldspar." The course of these dikes is not given. "On the north side of this road, forty or fifty rods back in the forest, is a ravine called 'the Flume.' It was formed by the decay of a large trap dike. The chasm is twenty feet deep and from ten to twenty feet wide, and is the channel of a stream of water, from whence it received its name. The trap dike runs N. 30 deg. E., and S. 30 deg. W., and is six feet wide. It is slightly porphyritic with feldspar crystals, and is of a dark brown color. It divides into large cubical blocks, which form a series of steps, so that when there is but little water a person may walk a considerable distance up the flume upon them. The principal ledge at this spot is granite, which protrudes through the mica slate."

Here we find a gorge through a mica slate range parallel with its direction, N. E. and S. W., the slate dipping N. W. 80 deg., intersected by trap dikes; and near, another trap dike in a fissure, having the course N. 30 deg. E., which is a variation of only 15 deg. from the direction of the Notch, and all coincide in direction with the slate. But whether the different dikes are connected or not, erosion would seem to be indicated, down to the present level of the dikes, to the amount of 800 feet.

(*d.*) To cite one more case where the agent is still acting. The Waterqueechy river at Queechy Village, Hartford, Vt., makes a high fall of twenty feet over a dam of ten feet, and its rocky channel and sides are covered with pot-holes, and the gravel banks are here some eighty feet above, with several terraces extending down a mile or more, where the narrow valley becomes a *cul de sac*, from which the water could not have escaped before the present outlet existed, *except at a much higher*

*level.** At this point the river enters a rocky channel, called "The Gulf," at a large angle with its previous course, and runs S. S. W. with a rapid descent for nearly a mile. The left bank (in the descent) is nearly vertical, though receding at top, and by estimate one hundred feet high, and the opposite bank, with various irregularities, is *in part*, and in some places *entirely*, made up of a *trap dike* from three to six and ten feet thick, whose course is N. N. E. and dip 58 deg. south-easterly, and coincident in these respects with the mica slate enclosing and underlying it, and parallel of course to the stream. It has here and there been crossed by the stream and extensively removed with the slate below it, and a channel has been made on both sides which is filled at high water; and again the dike is found enclosing the slate, and is extremely hard and compact.

Passing off at right angles to this dike, as lateral branches, and crossing under the stream, are two other large vertical dikes which are very distinctly seen in section in the perpendicular wall of slate opposite, and they may be traced some distance easterly from the top of the bank, but are soon concealed by gravel and soil. One of these is twelve feet wide, of light blue color, and beautifully amygdaloidal, with numerous white crystalized balls.

These last dikes do not seem to have been injected subsequently to the first, but are so blended at their union with it as to leave no doubt of their being one system, and a part of the trap net-work which extends through the region.

The pot-holes and troughs or elliptical holes are very numerous throughout the channel, as may be seen at low water, and they occur where there is no fall. They are produced by the action of a very rapid stream over an irregular surface. There can hardly be found a more satisfactory case of erosion by existing agencies. At the same time the trap dikes whose perpendicular section measures the extent of the specific action, indicate in their easterly extension, level with the surface of the enclosing rock of the bank above, the prevalence of earlier and more general superficial causes of denudation.

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* I am informed by the Rev. Mr. Dudley, of the village, that between the gulf and the village there are two distinct deserted channels parallel to the present one, but much higher, where in all probability the river once ran.

(*e.*) At the termination of the Mass. and Vt. Railroad, near the Connecticut river bridge at Brattleboro', Vt., it was necessary to remove by blasting a large amount of slate rock, which was graded down about thirty feet to the level of the track, which is about thirty feet above the river. The whole of the surface of the rock laid bare was very smooth, and worn into curves and channels and then scratched every where with strong marks, of varying north and south directions, parallel and crossing each other in groups. In this bank was a large trap dike thirty and more feet wide, whose surface was coincident with that of the slate, and showed the same marks, continuous from one to the other.

The direction of the dike is about N. N. E., in a line with the bridge across the river, and it is quite probable the dike extends a long distance either way, and was once a barrier to the river. The Connecticut river is here bounded on the east by a high rocky mountain, and the position and appearances of the dike in relation to the river suggest the inference that the removal of the trap is a fair measure of the erosion at this place, and, at least in part, of that produced by the action of the river (sixty feet.)

A small stream from the west, in a deep rocky channel just north of the bluff removed, seems to have had its course deflected so as to empty into the Connecticut river just *north* of the intersection of the latter river and the dike, and their joint force has continued to reduce the level of the latter so as to afford the free passage of the river.

(*f.*) We may mention here, before proceeding, a few facts brought to light by the different railroad surveys in New Hampshire and Vermont. The Rutland and Burlington Railroad crosses the Green Mountains at Mount Holly gap, at a level of 1350 feet above the Connecticut river.* In this place a cut was made through a muck swamp, which exhumed some remarkable elephantine remains.† The White Mountain Railroad survey from the Connecticut up the Ammonoosuck, passes the summit in or near Whitefield, at six hundred and fifty feet above the

* See profiles and reports of these roads.

† Agassiz. Proceedings Am. Assoc. for Adv. Science, held at Cambridge, September 1, 1849.

Connecticut, and this within twelve miles of Fabyan's in the White Mountains. The Passumpsic Railroad overcomes the summit in Sutton, at about nine hundred feet above the Connecticut at West Lebanon. The Central Railroad of Vermont passes the summit between the White and Winooski rivers near Montpelier, nine hundred and thirty feet above the Connecticut at West Lebanon. The Northern Railroad, from Concord, New Hampshire, to the Connecticut, passes the summit between the Merrimack and Connecticut valleys in Orange, with high grades of 52.80 feet in a mile on both sides, at an elevation of eight hundred and thirty feet above the Merrimack at Concord, and only six hundred and eighty-two feet above the Connecticut river on the west.

If at any time, by reason of the difference of level of these valleys of Connecticut and Merrimack rivers, water were discharged from one to the other for a long period through the lower passes, we should expect to have evidence of it engraved upon the rocks. If such evidences were discovered as we know from our running streams to be the effect of water, we shall be justified in referring them to a similar agency, i. e., water in motion. Should we observe phenomena like what are frequently seen in the less rapid parts of a river and above dams in a rapid stream, we may refer their production to a similar cause.

The original features of this Orange summit were remarkable, but they have been very much altered by the cut for the railroad, which has however added, by the new features developed, very much to its geological interest. The facts have an important bearing on problems which are now arising with reference to the geological history of New England, and are therefore worthy of record. A description, in part, is given by Dr. C. T. Jackson, in the Geology of New Hampshire, p. 113.

The turnpike from Canaan, on the northwest, passes some miles along the edge and on the sides of sand and gravel hills on the borders of an extensive swampy, peaty meadow, with a sandy bottom, which has long ramifications into intervale valleys, then near a shallow pond of a few acres, which is fed by a rivulet coming from the hackmatac swamp at the base of the summit.

The valley narrows rapidly, and towards the summit we find numerous long sand and gravel hills, shaped like an inverted boat, twenty to thirty feet high, parallel nearly to each other and to the general trend of the valley, with channels for surface water between them.

The depression or gap is several hundred feet below the general height of the range, and the old road formerly passed the summit at an elevation about forty feet above the swamp, and was made in the lowest channel cut by the waters formerly running here, and directly by the side of the "well,"* made a slight descent across soft ground on a log causeway, then over a rocky ridge and down into Grafton valley.

This well or pot-hole, as figured, appears worn down on the side next the road three feet lower than on the opposite; its depth is eight feet; its diameter is between four and five feet at top, and about two feet at bottom. A large number of small, smooth rounded stones from this well are in my possession, and in the Dartmouth College cabinet is a plum-shaped smooth mass of granite, which weighs two hundred and ninety pounds.

The surface of the rock, wherever seen, even high above the road track, is water-worn into cavities and channels descending to the southward, and great numbers of pot-holes have been uncovered, which have a tendency to a linear direction nearly north and south. In laying out the railroad, soundings were made between the two rocky barriers to the depth of near forty feet, in a peat bog, and the rock cutting was considerably diminished by laying the track about north and south, and obliterating wholly or in part many pot-holes of large and small size. Through the kindness of my friend, R. Bakewell, Esq., I refer to his drawing of the section made by the railroad on its west side.

The cut is north and south about 1600 feet long and thirty-five feet deep; the railroad is at the base, and the former carriage road at the top.

A, granite, presenting two rocky barriers *s*, *s'*, the latter somewhat the highest:—these to the eastward rise more rapidly into

* Figured, Geol. N. H., p. 114.

ridges than on the west. The course of the channels in the granite is diagonal from the east side and descends south, showing certainly the direction of the stream. (*q*) Quartz veins from one to four inches thick, dipping from 35 deg. to 42 deg. S. E., intersecting the granite. These are cut off in barrier (*s'*) by two large veins (*f*) (*f'*) of whitish green feldspar with mica, and in some parts is handsome graphic granite, and all much harder and more difficult to excavate than the granite; (*f*) is fifty-six feet wide and (*f'*) twenty-one feet. Their course is N. 18 deg. E., and dip westerly 66 deg., and by the light color of the feldspar they may be traced by the eye in a tortuous course far up the hills. B B' B'' are deposits without stratification, of fine and coarse gravel, with large and small rounded pebbles covering the granite and extending somewhat lower than the track of the railroad; the portion B'' was made up chiefly of pebbles of the larger size, even one foot by one and one-half foot. C is a bed or deposit of swamp muck, filling to the brim the excavation in the gravel and covering it from *s* to *s'*. This extends below the track, and east and west, and is some two hundred feet wide, in the line of section between B' B''. The draining of this swamp on the south caused it to settle and tear apart in large patches, and to prevent its filling the track as fast as the excavations went on, a close row of piles thirty feet long were driven on each side and braced apart at top. Coniferous trees of considerable size, eighteen inches in diameter, are found in this at all levels, prostrate and with roots attached, and

A, Granite.—B B' B'', Gravel, pebbles and sand.—C, Peat, containing trees and stumps.—*f f*, Feldspar veins.—*q q*, Quartz veins.—*s s'*, Sammite. *t*, Trap dike.

also lying on stumps that were still in a vertical position; when cut they were found in the interior quite sound and of bright color. (*t*) Is a dike of gray amygdaloidal trap, three and one half feet wide. Its course is N. 30 deg. E.; it was traced southwesterly up to the top of the ridge, some hundreds of feet above the road, for a distance of near half a mile, where it is only one foot wide; it may also be traced some way on the eastward side of the road.

In my note-book are memoranda of pot-holes measured here, some of which (the last three) have been since in part removed.

1.	16 inches	diameter	and	4	feet	deep.
2.	4 feet	"	and	4	"	"
3.	3½ and 4 ft.	"	and	10	"	"
4.	4½ feet	"	and	8	"	"
5.	13 "	"	and	12	"	" now less than a semicircle.
6.	5 "	"	and	8	"	" a semicircle.
7.	8 "	"	and	10	"	" in two curves, as if two holes had been worn into one.

No. 1, was filled with peat, and discovered by sounding with an iron bar; at a single blow the bar struck on the bottom a flattened, rounded smooth stone, of about four pounds weight, which was the last agent in the excavation of the hole. There is also a rocky channel some rods in length, oblique from the northeast, which is cut off by the railroad at its lower end; it is twelve feet wide and eleven feet deep, and contains near its mouth large rounded granite boulders from one to seven feet diameter. Such masses as these, with the great number of similar ones, large and rounded, in the portion of the gravel bed at B″, are proofs of the tumultuous action of a great body of water, by whose agency they were carried along into this whirlpool and revolved till they were rounded and often reduced to pebbles and powder, and thus removed to give place to others. At various stages in the process, some may have escaped from the excavations and were carried over the south summit, (*s*) or were lodged on its north side.

The phenomena here presented indicate a long continued discharge of a large current of water through this gap, from north to south, which has worn down the mountain range hundreds of

feet, as shown by the feldspathic veins, and especially by the *trap dike*, which was injected since the veins, as it cuts one of them. Similar circumstances must have been often repeated at higher levels, while this erosion was in progress. "The well" beside the road has been lowered three feet on one side, so as to form a channel in which the early road was made, while below this level it was perfect, and eight feet deep. We may suppose, with reason, that these wells had been of similar dimensions through a long period, while the action was going on, and that excavation below kept pace with the removal of the upper portion.

Between these two remarkable barriers on the north and south the excavation in granite of this longitudinal valley is more than forty feet deep and six hundred feet wide; it has a very uneven surface, with rounded hummocks rising from the bottom, as shown on the east and west side of the railroad, in a section from eight to eighteen feet high above the track. On the north side it is filled with the accumulations of gravel, and on the south side the basin in this gravel is filled with a deposit of peat, containing abundance of prostrate trees apparently of successive generations.

The configuration of the excavated gravel shows the last result of moving water; the accumulation of the swamp muck and the growth of trees in this cavity are of course of subsequent date. The violence of the current which has here acted may be inferred from the wearing effects exhibited on the rocks of the valley, south and east, where they are smoothed and rounded at elevations far above the stream now flowing there; also from the great depth of Tewksbury Pond, and from the extensive beds of pebbles, washed clean of all fine materials, sand and soil, in Danbury, about ten miles southeast.

Again—we see no evidence at present that these excavations and irregularities were produced by water *falling from a very great height;* they are rather the effect of a uniform though violent current; the same marks are seen in the slate and hard trap of the bed of the Queechy, where pot-holes and channels and

capacious excavations long and deep are abundant as the effects of a rapid stream.*

If we may safely conclude that where numerous dikes, and these it may be in groups of six or eight, are found crossing in a valley a river channel, as at Campton Falls, N. H., and reduced to a level with its bed, with occasionally one harder than the rest forming a barrier of slight elevation, we have before us a present agency which in time past may have been sufficient for the production of the degradation indicated by the extent of the valley. So when there are large, elevated areas yet far below the peaks and ridges of the country intersected in many directions by trap dikes and the whole surface worn smooth, we hesitate not to admit that a general denuding or erosive force has acted with energy and during a long period. When we find a mountain ridge cut at right angles by one or more trap dikes, and these reduced to an even surface with the crest and sides of the mountain, and continuous across the valleys, it is not easy for the mind to forbear concluding that the valleys are valleys of erosion, although they may be narrow and some thousands of feet deep. This is illustrated by the following cases.

(*g.*) Moose Montain is a part of a north and south range of mica and hornblende slates with quartzite. It is situated about eight miles east of Dartmouth College, and may be one thousand feet high. Between the granite knobs just east of the College and the range, there is a synclinal valley and axis, and the slates on Moose Mountain dip westerly at a high angle. In passing along the ridge some years since, I observed a depression eighteen feet wide with perpendicular sides twelve feet high, and this singular interruption of the line of the ridge led to an examination of the rock in this space. It proved to be a dike of columnar porphyritic trap running east and west, which was traceable

* In connection with these effects of larger currents, and in proof of their former existence in the channel of our present streams, I mention that a cut was made in West Hartford, Vt., on the Central Railroad, across the angle of a slate spur, about sixty feet above the White River, that opened a pot-hole to its bottom, seventeen feet deep, and between three and four feet diameter. In this were found two beautifully rounded and smooth spheres of granite, one of which unfortunately was buried in the track, and the other, almost a perfect sphere, two feet four inches in diameter, and weighing over nine hundred pounds, is preserved for science at the University of Vermont at Burlington.

some way down the declivity, but of a uniform surface with the sides of the mountain.

On the opposite side of the valley, and crossing it and the road obliquely, and following exactly the undulating and channeled surface of the slate, is another very compact, hard, blue trap dike, with crystals of glassy feldspar, and fourteen feet wide. These dikes if produced must intersect each other, and the latter is cut down many feet by a small stream.

A few miles south, where this ridge is interrupted by the valley of the Mascomey river or Enfield pond, the precipitous bluff presents a dike some feet in width, which is made up of flattened and rounded masses of trap in columns side by side, and rapidly decomposing. This is one hundred feet and more above the level of the lake, which is at the base of the ridge, and whose bed must be intersected by the dike.

(*h.*) Mount Washington, as I showed in the American Journal, xxxiv, in 1838, is covered or capped with mica slate *in place*—and as there is no evidence from diluvial scratches, boulders or rounded and smooth surfaces, of erosion or denuding forces, we infer that its peak ever has been above the reach of those agencies which have operated upon its flanks and upon the surrounding peaks.

If a fissure should occur through one of these granite peaks from valley to valley, (it would probably be much farther extended,) and if molten lava were to fill this fissure, it could never reach the apex or remain consolidated there, unless it were supported at the *limits* of the fissure on the flanks of the mountain. It is contrary to physical laws that as the lava rose in the fissure, it should not gravitate and run into the lower places, the valleys on the sides of the mountain, and only as these were filled would it rise in the fissure, and equally in both. This must follow whether the surface be submarine or subaerial.

1. If the existing valleys were filled to the height of the peak with *diluvium* or *drift*, like the conglomerate hardpan of this region, which is so consolidated that when excavated it must be blasted, this would seem sufficient to repress or hold up the column of lava and secure a uniform dike to the full height of the

peak. The hardpan would be fissured and the dike found continuous through it; but this supposition implies a *previous excavation or erosion of the valleys.*

2. If existing valleys were formerly filled with *trap* by an overflow from the fissure, they are now clear of it and have been reduced to their former condition, i. e., they have been excavated a *second time as in the former case.*

3. If the present valleys were formerly occupied by continuous rock, such as constitutes the mountains, then a support is had for the molten lava when ejected to the height of the peak, so as to allow the filling of the fissure and to form a dike; and the present configuration is the result of a subsequent erosion or excavation. Whether these valleys, therefore, were ever filled with diluvium or trap, need not be shown, as we must in that case, at a previous time, introduce the latter supposition, involving as it does only a single elevation.

There is a possible supposition that the valleys of the White Mountains are the result of fracture and subsidence of their areas —or of fracture and elevation of the ridges—but I know of no evidence of this, and where the rock can be traced across from side to side of a valley, the continuity is complete. To sustain the third view above, I cite the following facts.

Mount Pleasant, the third peak south of Mount Washington, is about 4500 feet high. Its top is a plain of five or six acres, so even and level that a horse may be galloped all about upon it.

It is intersected near its centre by a dike of very hard, bluish trap, three feet wide, whose course is east and west, which is worn off entirely smooth and level with the enclosing rock, and may be traced entirely across the top. Circumstances did not allow an examination for its continuance beyond these limits, where the sides of the mountain are covered; but by telescopic examination from Fabyan's, which showed distinctly the little column of trap fragments piled upon the dike of two feet in height, I was led to infer a probable relation between the dike and the slides on the west side of Mount Pleasant, which seemed to be in the range with it. However this may be, the dike must be considered, for the reasons already given, as of much greater

length than the crest of the mountain, and of course extending down into or across the valleys.*

Though the positive evidence may be wanting of this latter point, yet from a party of our students who, in the autumn of 1848, descended into the valley on the east side of Mount Pleasant, from directly opposite the "Lake of the Clouds," and followed the mountain stream throughout its course of falls and rapids, &c., to the valley of Dry river, and down this to its junction with the Saco in the Notch, two or three miles below the Willey House, and some twelve miles from where they began the descent—I learn that "two or three miles above the mouth of Dry river there are several remarkable trap dikes at right angles to, and crossing the stream, and running up into the mountain on the sides; one of them is five or six feet wide and is smooth and even with the rock enclosing it, and the stream makes a nearly perpendicular plunge at this point, of eight or ten feet,"—thus presenting such phenomena as are common in other similar places, and as ought to be found constantly existing or repeated in a process of excavating a valley by a running stream.†

The facts which I have recorded, showing the relations between trap dikes, which have been denuded and eroded to considerable depths by running streams, will need no comment or illustration. In regard, however, to such cases as Mount Pleasant and Moose Mountain, where no running water is found, we must recur to the periods when the relations of land and water were very different from the present.

We are too much disposed to look upon the great features of this group of mountains as fixed so long ago as to have no connection with the minor ones now presented, and which are in process of increase. The agencies of decomposition are now at work on a scale of sufficient magnitude to produce great changes in a generation, and the accumulation of debris since August, 1826, at the gorge back of the Willey House, and in the outlets of the two below it, if we could add also the large amount of

* This dike I have found since 1849 cutting the path along the east side of Mount Pleasant, and some hundreds of feet below its top.

† I ascended this valley in 1852, with a portion of my College class, and we found a dozen trap dikes of much interest, crossing the stream.

fine materials carried down stream by the Saco from these sources, are well calculated to prevent our underestimating their importance.

The gorge one-half of a mile below the Willey House being in the line of some trap dikes cutting the mountain, is already a very considerable depression, and in imagination we may anticipate the time when it has become a separating valley, two or three thousand feet deep, like the one east of Mount Pleasant. We have only to extend this view to the thousands of precipitous torrents, and the more advanced channels, to provide for the future intersection of these ranges, and, as the valleys are deepened and widened, for their more rapid destruction by undermining and slides. It is not my object to exclude by any means the general operation of any or all of the authentic agencies, whether marine or fresh water, or others subordinate, that by future observation may be shown to have left their impress on this region; but while observation shows a very considerable erosion of these valleys and mountains now going on, I wish to present other facts which lead to the conclusion that these *deepest valleys are but valleys of erosion.*

The examination of the valleys of the State of New York, as at the Little Falls, &c., and of its lakes in different parts, shows a difference of level and a depth of erosion of 1200 to 2000 feet. So also the observations on the sandstone of the Connecticut valley in Massachusetts and Connecticut, indicate its erosion to the extent of 1200 feet. This erosion of the sandstone is only consistent with a similar one in the northern portions of New England, and requires its occurrence if we would provide the constituents of the sandstone in the first place and its continuance and increase subsequently. Whether this result is referable to one period or another, is not now a question.

The following facts are cited from the report of the Geology of New Hampshire, to sustain the general proposition, and which is also strengthened by the evidence afforded by metallic veins in positions similar to that of the trap:—

1. The Lower Patuccoway Mountain of syenite in Nottingham is cut, through its summit, into two nearly equal parts by a

dike of columnar greenstone trap from six to twelve inches wide, and which can be traced for a quarter of a mile till concealed by the soil. This mountain is 780 feet high above the sea.—*p.* 50.

2. In Piermont the mica slate is intersected by numerous dikes of greenstone trap; and from Piermont to Haverhill Corner, nine dikes are found, some of them porphyritic, and one so filled with magnetic iron pyrites as to affect the compass.—*p.* 65.

3. Red Hill, of syenite, and 2000 feet above the level of the sea, is crossed at about one-third its height by a large dike of porphyritic trap, N. 30 deg. W.—*p.* 71.

4. On the declivity of the westerly peak of Gunstock Mountain, which is 1561 feet above Lake Winnipissiogee, is a vein of magnetic oxyd of iron, the pieces of which have polarity, and large dikes of trap occur on the southerly peak.—*p.* 72.

5. Baldface Mountain, in Jackson, of granite, is cut through its midst by a few trap dikes, and at a height of 1404 feet above its base, and in other places is cut by veins of peroxyd of iron of great width, which are traced down its flanks.—*pp.* 78, 79.

6. Several trap dikes in Jackson contain carbonate of lime, and cut through mica slate, granite and a granite vein, one of which is fifty feet wide.—*p.* 80.

7. At Hampton Falls, and on to the sea, the hard flinty rock is cut by dikes of trap.—*p.* 93.

8. In Eaton, dikes of porphyritic trap from ten to sixteen feet wide cut through a hill of granite, and again in another place a trap dike four feet wide cuts a hill of granite.—*pp.* 95, 98.

9. On the east flank of the White Mountains, on the Pinkham road in Jackson, the mountain ledge of mica and chiastolite slate is cut by two large trap dikes, and Town's hill, in Lancaster, is intersected by trap dikes in limestone.—*p.* 99.

10. Trap dikes, porphyritic and dark brown compact, occur at Berlin Falls, and are also found in passing from Berlin to Lancaster.—*p.* 104.

11. In Littleton are trap dikes cutting mica slate.—*p.* 109.

12. Thorn Mountain, in Jackson, consisting of a porphyry, is cut through at top by veins of magnetic oxyd of iron descending its flank, and by a dike of basalt.—*p.* 145.

These examples of trap are at very various heights above the sea, and are a fair illustration of the amount of erosion of the rocks in their several localities. I know of no more valid objection to the conclusions based on the evidence afforded by the relations of the trap in New Hampshire, than would lie against those derived from the trap in other formations, whether in the mountains of northern New York or in the coal formation, or in the sandstone of all countries; and future examinations in the very instructive geological field of the White Mountains, will doubtless furnish much more similar evidence.

GEOLOGY AND CHEMISTRY.

An Essay on Geology and Chemistry, in their relations to Agriculture; by WILLIAM GREY, M. D.

The general appearance, fertility and composition of all natural soils depend, in a great measure, upon the geological formations that underlie them or are found in their immediate vicinity. There are, however, several exceptions to this rule, as found in alluvial deposits, and in large quantities of the detritus of different and distant formations, which has been carried by rapid currents of water, and deposited to a considerable depth upon original natural formations. Alluvial soils are found in Concord, Amherst, Charlestown, &c., in this State; and those composed of the detritus of distant formation, are found in Newington, Kingston, Kensington, Hampton, &c.

As it is a fact that the nature of a primary soil depends upon the nature of the rocks that underlie it, it is quite certain that the soil has been produced by water, by changes of temperature, and by atmospheric and solar influences acting for a long series of years upon those rocks. When we take into account the fact that almost all the soil of this State has been formed from the primary rocks, viz: granite, sienite, gneiss and mica slate, together with their subordinate rocks, which are sometimes imbedded and interstratified with them, viz: hornblende, serpentine, crystalline limestone and quartz rock; and also remember that these primary rocks are nearly all composed of three substances —quartz, feldspar and mica—in different proportions, we shall not be surprised to find that the soil, over a great portion of the State, partakes of the same general characteristics; and knowing, also, that the primary rocks are very deficient in many substances which enter into the composition of a rich, forcing soil, we are prepared for the fact that the soil of New Hampshire

cannot rank either No. 1 or No. 2, when compared with the soil in many other parts of the Union. She is deficient in those extensive deposits of lime, of marl, of clay, and of alluvion, which conduce so much to the prosperity of agriculturists in many other parts of the country. We find these articles, however, on a small scale, in many sections of the State. Lime is found in Haverhill, Lisbon, Lyme, Orford, Amherst, Warner, Cornish, and in other places, particularly along the Connecticut river, which conduces much to the fertility of the soil, and is especially useful to wheat crops. Calcarious marl is found in Columbia, and clay, in small quantities, in many parts of the State. They are, however, found in so small quantities, and spread over so small a portion of the State, that the soil of New Hampshire, as a general thing, must always be deficient in these fertilizing earths.

In almost every town in the State may be found two or more of the primary rocks in abundance; but the most common are granite and gneiss, while sienite and mica slate are less abundant. A soil which has been formed from either or all of the primary rocks can never be deficient in silica, for it forms an essential part of each. If a soil of this kind, after having been cultivated for many years, seem to be deficient in silica, it is owing to the exhaustion of other substances which act upon the silica, rendering it fit for the support of vegetation.

The soil is much warmer, lighter and more productive where mica slate and sienite predominate, than where granite and gneiss are the prevailing rocks, because the former contain more of the alkalies and alkaline earths, viz: potash, lime, magnesia and alumina. This very readily accounts for the difference in farms and townships—why one is called strong and another weak, when they are separated only by a ravine, a brook, or by the cropping out of a ledge.

It is now admitted by nearly all modern geologists and chemists that all virgin soils which are capable of producing good crops, by ordinary cultivation, without manure, contain the following ingredients:

TABLE 1.

	Fertile without cultivation.	Fertile with cultivation.
Organic matter,	97	50
Silica,	648	833
Alumina,	57	51
Lime,	59	18
Magnesia,	8	8
Oxide of iron,	61	30
Oxide of manganese,	1	3
Potash,	2	trace.
Soda,	4	"
Chlorine,	2	"
Sulphuric acid,	2	1
Phosphoric acid,	4	1
Carbonic acid,	40	4
Loss,	15	0
	1000	1000

The proportions given above are those made use of by Prof. Johnston of England, in his lectures before the New York State Agricultural Society, and are not to be regarded as essential to a rich virgin soil. They are only an approximation to what are generally found in such soils, and are made use of here as a matter of convenience. The proportions of these ingredients vary very materially in virgin soils which are equally productive. If a soil should contain twice as much alumina, twice as much lime, twenty per cent. less silica, and one-fourth as much oxide of iron, as are represented in the foregoing table, it may still be quite as productive. A hundred like variations might also be made without injuring the productiveness of the soil; but if you deprive that soil of any *one* of these ingredients, you at once destroy its productiveness. In a very fertile soil, for instance, the phosphoric acid may be only two or three parts in a thousand, yet so essential is this substance to the growth of vegetation, that if this small quantity be removed, the remaining soil becomes worthless, and no amount of fertilizing agents will secure a crop, unless they contain this acid, or phosphorus from which it may be formed. The same remarks are equally applicable to a deficiency of lime, potash, soda, chlorine, &c., and in fact to any one

of the thirteen substances named in the table. Phosphoric acid, lime, soda, potash and chlorine have been especially named, because they are more likely to be drawn from the soil by long cultivation, than many other substances.

To make this subject still plainer and more practical, I introduce the following table, which exhibits the inorganic substances found by analysis in some of our common crops:

TABLE 2.

Per cent of.	Wheat.	Straw.	Rye.	Straw.	Beans.	Straw.	Corn.	Potatoes.	Turnips.
Potash, ...	23.72	12.44	22.08	17.36	33.56	53.08	23.20	55.75	39.82
Soda, ...	9.05	.16	11.67	.31	10.60	1.60	3.80	1.86	10.86
Lime, ...	2.81	6.70	4.93	9.06	5.77	19.99	.10	2.07	12.75
Magnesia, ...	12.03	3.82	10.36	2.41	7.99	6.69	17.50	5.28	4.68
Oxide of iron, ...	.67	1.30	1.36	1.36	.56	.22	.10	.52	.89
Ox. of manganese,						.16			
Phosphoric acid, .	49.81	3.07	49.55	3.82	37.57	7.24	49.20	12.57	6.69
Sulphuric acid, ..	.24	5.82	.98	.83	1.00	1.09	.50	13.65	13.15
Chlorine, ...		1.09		.46	.73	2.56	.30	4.27	3.68
Alumina, ...						.32			
Silica, ...	1.17	65.38	.43	64.50	1.15	7.05	.80	4.23	7.05

It will be perceived, by comparing this table with the first, that all the substances found in a productive virgin soil, are found also in the ashes of our common vegetables, with the exception of carbonic acid, and the organic matter. The carbonic acid is placed by some among the organic substances, and by others among the inorganic; some believing carbon to be of vegetable origin, and others supposing it to be of mineral. The proportion of organic matter contained in vegetables is not given in the second table, but will hereafter demand our particular attention, when we come to treat upon the organic structure and food of plants.

Having now before us the inorganic constituents of a fertile soil, and also the inorganic constituents of several vegetable substances, we are prepared to make some practical deduction from a comparison of them. The human system may become debilitated by disease of one organ only, or there may be general debility, where many or all of its organs may be diseased; and to apply remedies successfully, the cause and seat of the disease should first be ascertained. So with regard to the soil; we must

first learn the cause of its failure to produce a crop, before we are prepared to recommend a proper remedy. When one particular ingredient of a soil has been expended by a long succession of crops of one kind, or of similar kinds, it is called, by agriculturalists, *special* exhaustion; and when a soil loses its productiveness by a rotation of crops, continued for many years without a proper application of manure, it is called *general* exhaustion. As an example of the former, observe that about fifty per cent. of the ash of wheat is phosphoric acid. Now one hundred pounds of wheat contain about two pounds of ash, and consequently one pound of phosphoric acid. Suppose an acre to produce twenty bushels of wheat, weighing sixty pounds to the bushel, it would amount to twelve hundred pounds; and as every hundred pounds contain one pound of the acid, there would be a loss of twelve pounds of the acid to the acre, for every crop of wheat. On looking at Table I, it will be seen that in a rich virgin soil, which will produce good crops without manure, there are only four pounds of the acid to one thousand pounds of the soil. And in a soil which will produce good crops *with* manure, and this is called a good soil in New Hampshire, the amount of this acid is often reduced to two, and even to one pound in the thousand. It then becomes evident that this amount of phosphoric acid would become almost extinct by a long succession of wheat crops. And the same holds good in regard to rye, corn, and oats, for these crops all contain a large percentage of phosphoric acid in their ashes. To attempt to restore an exhausted soil by a rotation of this kind of crops, would be like resting a jaded horse by letting Tom, Dick and Harry ride him alternately. I need hardly suggest the proper means of restoring a soil when it has been exhausted by a succession of these crops, after the above explanation. The remedy will, of course, be found in such manures and fertilizing agents as contain either phosphorus, phosphoric acid, or some of the phosphates in large quantities. The supply will be found most abundant and available in bone dust and guano. The former contains about fifty per cent. of the phosphate of lime, and the latter from twenty-five to thirty per cent. These substances applied, in connection with the ordina-

ry manures, will soon restore a soil made barren by this kind of special exhaustion. The guano operates very rapidly, in consequence of its solubility, the greater part of its energy being expended the first year, while the more difficult solution of bone dust protracts its influence for several years. Much caution is necessary in purchasing guano, for some kinds are nearly worthless, as they contain little more than the amount of organic matter found in an equal quantity of barn-yard manure. This is owing to their being obtained from places exposed to heavy rains, by which their phosphates and ammoniacal salts are nearly all washed away. For this reason guano obtained from Peru and its vicinity is far preferable to that from Chili and Patagonia. One hundred weight of good guano, or two hundred and fifty weight of bone dust, has been proved by actual experiment to be equal to sixty or seventy hundred weight of barn-yard manure.

Another mode of rapid exhaustion, as every farmer knows, or ought to know, is to sell the straw of the cereal and hay crops. The rationale of this kind of exhaustion is readily learned by examining the two preceding tables. It will be observed that in every hundred pounds of the ash of wheat straw there are found twelve pounds and forty-four hundredths of potash, and sixty-five and thirty-eight hundredths of silica; and in the ash of rye straw there are found seventeen and thirty-six hundredths of potash, and sixty-four and fifty hundredths of silica, to say nothing of the large quantities of lime and sulphuric acid which they contain. These proportions are nearly the same in oat and barley straw. English hay, also, contains a large per cent. of the same substances. One ton of wheat straw produces about ninety pounds of ash, and, consequently, contains eleven pounds and twenty hundredths of potash, and fifty-eight and eighty-four hundredths of silica.

It will be observed, on examining table first, that in one thousand parts of a rich virgin soil there are only two parts of potash; and that in a soil fertile with manure there is barely a trace of potash, not enough, even, to be weighed by the most delicate scales. Is it then a matter of surprise, with these facts before us, that cultivated lands are so rapidly exhausted under this kind

of treatment? The large amount of silica removed in this manner may be regarded by some of secondary importance, since the soil contains so large a quantity. We should remember, however, that, although silica is of but little importance in a soil, unless it have a proper solvent to render it fit for the support of vegetation, with that solvent it becomes of vital importance to all kinds of crops, especially to the grain crops. In removing the straw, we not only remove the available silica, but at the same time remove the substance which renders it available, viz: the potash.

A soil may contain a sufficient amount of organic matter and phosphoric acid to grow a good plump kernel of wheat, rye, barley, or oats, but unless it also contain the substances essential to produce the straw and glumes, we can never obtain a crop of these grains, for a kernel of grain will never come to maturity without a proper covering, and a large head can not be supported without a proper stalk. How often do we see fields of grain, on old and worn out soils, making the most desperate efforts to attain a respectable height and standing in the world, and failing in this, become old and bowed down before their time. On close examination we find the heads are short, containing a few plump well formed kernels. What is the inference to be drawn from this fact? Evidently, that the soil contains the ingredients which enter into the formation of the kernel, but that it is deficient in those which are necessary to the healthy growth of the straw. When such grain is up six or eight inches high, it looks of a yellowish green color, and as the heads begin to run up, the ends of the leaves begin to dry up. The disease is soon communicated to the stalk, which is thereby rendered unfit to convey proper nourishment to the head; and the result is as we have seen, but few kernels come to maturity.

This subject is very beautifully illustrated by crops of rye, grown upon newly cleared land, upon a burn, as it is called in New England. The farmer knows, if he gets a good burn, that he shall get a good crop of rye, and that failing in the burn, he also fails of a crop. If he have to pile up his under-brush, and burn it in that way, his crop will be very uneven. By the pro-

cess of burning he applies potash to the soil, which acts upon the silica, securing a large amount of nutrition to the straw; and as there is generally a large quantity of organic matter in a new soil, he seldom fails of a crop. The proper manner of restoring land, exhausted in the way as stated above, has already been alluded to. It of course consists in the application of manures which contain large quantities of potash, such as barn manure and wood ashes.

I might go on to notice the manner in which almost every ingredient in the soil could be reduced by special exhaustion; but enough has already been said to establish the principle, which is the great object to be attained in the application of science to agriculture. When we can explain the reason of practices already adopted, why old usages are defective, and why new ones are better, the work is already more than half accomplished. It only remains to apply these principles to practice, to convince the most incredulous.

General exhaustion is produced by growing a variety of crops on the same land, for many years, without applying a sufficient amount of manure, or the proper kind of manure. If an equivalent be returned for every crop that is taken off, there can be no exhaustion. So then if a farm become exhausted, we know it has not been skilfully or scientifically managed. It is now believed to be a fact, by all scientific men, that not a particle of matter ever has been or ever can be really lost, but that what appears to be loss, is only a change of form or place. If this be true in regard to the world of matter, it may also hold good in relation to certain parts. It is quite evident, then, to my mind, that if all the crops grown upon a given portion of land should be returned to it again in a state of manure, there could be no exhaustion. The management of small farms in England, France, Germany, and in other countries where every fertilizing agent is most scrupulously preserved, supports this view in the most conclusive manner. It is also evident from experiment that the manure obtained from the consumption of a crop is equal, if not superior to the crop itself, as fertilizing agents. If soils could become exhausted by vegetation alone, our forest lands would become ex-

hausted, and the whole world would be going to decay. Such, however, is not the economy of the Creator, either in regard to the wild or cultivated lands. Any theory to the contrary will be a theory opposed to nature, and will, in the end, be proved to be erroneous. In all cases of exhaustion, then, there must have been a loss somewhere; and that loss will generally be found in the mismanagement or neglect of the manure. Here an immense loss may be incurred, almost imperceptibly to a superficial observer.

By a judicious rotation of crops, land will not become unproductive so rapidly, though otherwise poorly managed, as by growing one kind of crops for many years in succession. If potatoes be raised many years in succession, the soil becomes exhausted of its potash, particularly; for the ash of this tuber contains more than fifty per cent. of potash. Beans are also very exhausting, not only to the potash but also to the phosphoric acid, as they contain in their ash thirty-three or thirty-four per cent. of the former, and about thirty-seven per cent. of the latter. Hay crops draw more largely upon the lime; and grain and corn crops, as has already been observed, upon the phosphoric acid.

The waste of manures has so important bearing upon this subject of general exhaustion, that I cannot refrain from remarking upon it more at length in this connection, even at the risk of digression. One half of the farmers, at least, and perhaps I should not be far from the mark if I should say three fourths, in the New England States, leave their barn manure entirely exposed to washing rains and melting snows, and not unfrequently to the accumulated dropping from the eaves of their barns. By this neglect great quantities of the inorganic and soluble materials are washed away. Barn-yards are very often constructed in such a manner that the rain will drain off rapidly; and, by many, this is considered a very desirable arrangement for the comfort and health of the stock. But then what is the manure worth in such a yard? A mere nominal price, for there is but little left except a portion of its organic substance, and that of the coarser sort. Its phosphoric acid, its potash, its soda, its chlorine, its magnesia, its lime, &c. &c., are nearly all washed out of it. But

the farmer says, "This is not in reality a loss; these substances have washed down over my farm, so that what I lose in one way I gain in another. It makes that ravine produce a fine crop of hay without cultivation." It is very true the farmer may cut a ton more of hay on a certain portion of land; but if he were sensible of the fact that he would cut five tons more on his farm, if the manure were properly distributed, he would make very different arrangements. It is not only the unequal distribution of the manure that is to be taken into the account, but the fact, also, that large quantities of it are carried off into the brooks and rivers, and lost to the farmer as effectually as if they were annihilated. This is a ruinous drain to the farm, producing general exhaustion in a sort of wholesale manner. By such management, though one may draw on muck and marl, and spread on ashes, and bone-dust, and lime, and plaster, he will never become wealthy; for what he puts into the hopper will run to waste at the tiller, so that he will only be able to keep the mill in motion, the toll being barely enough for a meagre subsistence. The importance of preserving the soluble and liquid parts of manure will become apparent by comparing the amount of inorganic matter contained in urine with that contained in the dung.

1000 lbs. of fresh human exerement—		Of fresh urine—
Contain of nitrogen,	7 pounds	10 pounds.
" potash and soda,	3 1-2 "	2 "
" lime and magnesia,	5 1-2 "	0 1-4 "
" phosphoric acid,	5 1-2 "	1 1-2 "
" common salt,	0 1-8 "	7 "
Total,	21 5-8 lbs.	20 3-4 lbs.

The result of analysis in this case is quite unexpected, but it speaks for itself of the great importance of preserving the urine, as well as the other liquid parts of manure. Every barn-yard should be so constructed, if uncovered, as to hold all the liquid and soluble parts of the manure in some part of it, where loam, muck, sawdust, chip-dirt or other absorbent substances can be deposited in sufficient quantity to contain all the liquid parts; or a cistern should be constructed, into which it might drain, and be preserved for future use. When the importance of this

subject is duly appreciated, in all its bearing, the farmer will no more think of letting his potash, soda, lime, magnesia and phosphoric acid run to waste, than he will think of letting his corn, grain or potato crops remain in the field during the winter; for a dollar saved is as good as a dollar earned, especially when it costs but half the labor. When we realize that under the present management of many farmers, one quarter part, at least, of their manure runs to waste, the loss to the whole State assumes an importance almost beyond calculation.

The preceding remarks have been confined, almost exclusively, to certain inorganic substances, contained both in the mineral and vegetable kingdoms, and to their relations to each other as cause and effect. I have spoken of these, primarily, because they are emphatically the *ground* work of agriculture. I shall now treat of the organic substances which are found in the soil, those which enter into the constitution of plants, and the manner in which such substances enter into and increase the growth of vegetation.

Organic substances are those substances which are of vegetable and animal origin, and which are essential to the construction of organs which possess life, either animal or vegetable. For instance, bone consists principally of cartilage and gelatine, (organic substances,) and of phosphate and carbonate of lime, (*inorganic substances.*) When bones are immersed in dilute hydrochloric acid, the lime unites with this stronger acid, forming a very soluble salt, the hydrochlorate of lime. Bones, thus deprived of their inorganic substances, the phosphate and carbonate of lime, &c., retain their organic structure and form, but are so flexible that they can be doubled up without breaking. All bones are originally formed from these organic substances, and are at first very flexible. Afterwards, the inorganic substances are deposited, which give them their strength and solidity. The organic portion of any substance is removed by submitting the same to a red heat. This remark applies, of course, alike to the soil, to vegetables and to animals. If bone be submitted to a red heat, the cartilage, the gelatine and the oily matter will be driven off in the form of gases, and there will

remain only the inorganic matter. Hence if you wish to ascertain the amount of organic matter in a given soil, you first weigh a portion of the dry soil, then submit it to a red heat and weigh again. The loss is the amount of organic matter contained in the soil. By the same process, the amount of organic and inorganic matter contained in vegetable and animal substances can be ascertained. This analytical process is so simple that it can be performed by almost any one.

The amount of organic matter contained in different soils varies materially, some containing only a trace, as sandstone soils, while others, such as peaty soils, contain a very large percentage. By comparing the analyses of forty-one specimens of soil, I find the mean amount of organic matter to be five and thirteen hundredths per cent. A rich virgin soil will contain more, perhaps as high as ten or fifteen per cent., while a barren soil will contain much less than the mean. Only a small percentage of the soil, then, consists of organic matter, while in vegetables the contrary obtains. Wheat, rye and corn contain 98 per cent. of organic matter, oats 96, rice 99, peas 97, potatoes 98, turnips 99, and meadow hay 92 per cent. A large proportion of this, however, in potatoes and turnips, consists of water, viz: 75 per cent. in potatoes, and 88 in turnips. In the other substances named there are found only from 12 to 16 per cent. of water. These results are only obtained by *analysis*, which perhaps demands a passing remark in this connection.

Analysis is divided by chemists into two kinds, *proximate* and *ultimate*. When a piece of granite is examined and found to be composed of quartz, feldspar and mica, that is proximate analysis; but when the quartz is separated into silicum and oxygen, the feldspar into silicum, aluminum, potassium, and oxygen, and mica, into the same elements as feldspar, though in different proportions, this is ultimate analysis. By proximate analysis we find that certain vegetables contain sugar, starch, gum, lignin, &c., and by ultimate analysis we ascertain that sugar, starch, gum and lignin are composed of the elementary substances, carbon, oxygen and hydrogen in different proportions. Proximate analysis, then, consists in ascertaining how many compound sub-

stances are contained in a given quantity of matter, and ultimate analysis, in determining the number and quantity of elementary substances which enter into the composition of such compounds. The elementary substances of which all organic matter is composed, viz: carbon, oxygen, hydrogen and nitrogen, demand a passing description. They are all susceptible of being changed into gases by exposure to heat in the open air; hence the fact that all organic matter is driven off by heat, as before stated.

CARBON constitutes a large per cent. of organic matter in general. If a piece of wood be subjected to a red heat in a closed vessel, there will remain a black brittle mass, called charcoal. This is carbon in combination with a small per cent. of inorganic matter. If the charcoal be further exposed to a red heat in the open air, the carbon will soon disappear, leaving only the inorganic matter in the form of ash. By this process of burning, the oxygen of the air unites with the carbon, forming carbonic acid gas. This gas always exists in the air, constituting not far from one twenty-fifth of one per cent. When largely increased it becomes highly destructive to animal life. The accidents which result from burning charcoal in tight rooms is owing to the generation of this gas, and consequent destruction of oxygen. Carbonic acid gas will not support combustion. It is much heavier than the air. It is often found at the bottom of caves and old wells which have become dry. Carbon in the shape of charcoal is a powerful disinfecting agent, owing to its great absorbent powers. It absorbs both liquids and gases in large quantities, hence its use in destroying the odor of tainted meat, and also in medicine. Carbon enters largely into the composition of hard coal, constituting about 75 per cent. of its entire bulk. In the form of carbonic acid it unites with the oxides of many metals, constituting that large and important class of salts, called carbonates. It constitutes also a large per cent. of common limestone, and all kinds of marble. It is easily detected by applying any of the stronger acids, as the hydrochloric, the sulphuric, &c., which cause it to effervesce and escape in a gaseous form. Diamond is carbon in its greatest purity.

OXYGEN, another of the four elementary substances which constitute organic matter, never exists in a simple uncombined state, except as a colorless, inodorous gas, whose specific gravity is about ten per cent. greater than the air. It is the principal supporter of life and combustion. All burning bodies burn with increased vigor when immersed in oxygen gas. It has a very powerful affinity for surrounding objects, uniting with most of the metals, forming what are called oxides. It unites with the metals potassium, sodium, calcium and magnesium, with great avidity forming potash, soda, lime and magnesia. It unites with hydrogen to form water in the proportion of eight-ninths, and with nitrogen to form air in the proportion of twenty hundredths by measure.

HYDROGEN, another of these elementary substances, is a colorless, tasteless and inodorous gas, sixteen times lighter than oxygen. It is the lightest body known in nature, and is therefore used for filling balloons. It unites with oxygen in the proportion of one to eight, by weight, to form water, and of two to one by volume. It is highly inflammable. When two parts of hydrogen gas are mixed with one of oxygen, and exposed to a moderate heat or flame, they unite with a violent explosion; and the sole product is water. Hydrogen, united with carbon, constitutes the principal illuminating substance in oil, camphene, burning fluid, (which consists of alcohol and a little camphene or spirits of turpentine,) oil gas, coal gas, &c., the hydrogen producing the heat, and carbon the light, principally. This combination of carbon and hydrogen is called carburetted hydrogen. It is generated in stagnant pools and marshes, where organic vegetable matter is undergoing decomposition. It sometimes ignites and produces the phenomenon called *ignis fatuus*.

NITROGEN, the remaining element of organic matter, is a colorless gas, without taste or smell, somewhat lighter than the air, of which it constitutes about eighty per cent. Its use in the atmosphere, though existing in so large a proportion, is quite unknown. Some suppose it acts only as a diluent, to render the oxygen fit for respiration. It probably exerts some important influence on the animal economy, which scientific research has yet to develop.

In combination with oxygen, it forms nitric acid and protoxide of nitrogen, called exhilarating gas, which produces a very exhilarating effect upon the system, when respired for a short time. It unites with hydrogen to form ammonia, and in this state is highly beneficial to vegetation. It is not a supporter of combustion nor of life, so far as known. We have now examined some of the important characteristics of the four elementary substances which, in their varied combinations, constitute organic compounds. We shall now notice, very briefly, some of these organic compounds.

The organic portion of the soil is found to be composed principally of undecayed vegetable matter, of humus, of humic acid, of crenic acid, of apocrenic acid, &c. These compounds, by ultimate analysis, are found to consist of carbon, oxygen and hydrogen, in different proportions. The elementary substances which enter into the composition of vegetables is found to be nearly the same as those which compose the organic portion of the soil. The number and variety of vegetable compounds which are elaborated from these four elementary substances, carbon, oxygen, hydrogen and nitrogen, are very great. We can but wonder and admire, when we take into consideration the number and variety of vegetable compounds which the plastic hand of Omniscience has generated from these four elementary substances. The sweet and the sour, the bitter and the spicy, the nutritious and the poisonous, the agreeable and the disagreeable, the exciting and the depressing, the corroding and the healing principles, are all the result of a skilful and varied combination of two or more of these elementary substances. The sweet and agreeable scent of the rose, the lily, the mignonette, the heliotrope, and the sassafras, as well as the disagreeable odor of the skunk cabbage, the stramonium, the henbane, &c., are all owing to the same skilful combination. Some vegetables contain as many as twenty or more distinct compounds, with properties appreciable by the senses, taste, smell, &c. There are sometimes found in organic compounds traces of sulphur and phosphorus, but the quantities are so small that they are made but little account of.

All elementary bodies, whether mineral, vegetable or animal, are disposed to unite with other bodies, whether elementary or compound, in certain definite proportions; and this law holds

good when compounds unite with each other to form new compounds. Hydrogen being the lightest substance known in nature, is taken as the standard. The least proportion in which hydrogen is known to unite with any other substance is called 1. Then the least proportion in which oxygen will unite with hydrogen is eight times as heavy as the one part of hydrogen, therefore 8 is the number which represents one portion of oxygen. These two substances unite in these proportions to form water, and in no other. The least proportion in which carbon is known to combine with any other substance is 6.12, and nitrogen 14.15; hence these are called their combining numbers. One of these substances may unite with one, two, three, four or five proportions of another substance, and form compounds, each of which will have distinct and definite properties of its own. Hence the great variety of compounds formed of these few simples. To illustrate more fully the manner in which these elementary substances unite to form different compounds, I have inserted the following tabular view of some of the more common organic compounds of vegetable origin.

Proximate substances.	Elements which compose them.			
	Carbon.	Hydrogen.	Oxygen	Nitrogen.
Oxalic acid,.....	12.24	0.00	24.00	
Acetic acid,.....	24.48	3.00	24.00	
Malic acid, ...	24.48	2.00	32.00	
Tartaric acid, ...	24.48	2.00	40.00	
Tannic acid, ...	110.16	9.00	96.00	
Gallic acid, ...	42.84	3.00	40.00	
Morphia, ...	208.08	18.00	48.00	14.15
Quinia, ...	122.40	12.00	16.00	14.15
Strychnia, ...	183.60	16.00	24.00	14.15
	In one hundred parts.			
Sugar, ...	42.85	6.35	50.80	
Starch, ...	43.55	6.77	49.68	
Lignin, ...	51.45	5.82	42.73	
Oil of turpentine, ...	85.50	11.50		
Camphor, ...	79.28	10.36	10.36	
Common resin, ...	75.94	10.71	13.33	
Caoutchouc, ...	90.00	9.12	.88	
Beeswax, ...	80.40	11.30	8.30	
Alcohol, ...	52.17	13.40	34.79	
Sulphuric ether, ...	64.96	13.47	21.57	

In the foregoing table, the nine first substances mentioned show the definite manner in which the three or four elementary substances unite to form compounds. Remembering that 6.12, 1, 8, 14.15 are the least combining numbers of carbon, hydrogen, oxygen and nitrogen, we very readily see how multiples of these numbers combine to form different compounds. For instance, acetic acid (vinegar) contains four equivalents of carbon, $6.12 \times 4 = 24.48$. It also contains three equivalents of hydrogen, $1 \times 3 = 3$, and three of oxygen, $8 \times 3 = 24$. If the numbers which represent the elements which compose acetic acid be added together, thus, $24.48 + 3 + 24 = 51.48$, we have the number which indicates the least proportion in which acetic acid will unite with any other substance to form a definite compound. Acetic acid can be diffused in water in any quantity, but this is only a *mixture*, not a compound. If you attempt to mix acetic acid with a solution of potash or soda, you will fail, for these substances have so strong an affinity for each other that they unite together in definite proportions, forming compounds entirely different from the original substances employed. Not so in the case of a mixture. The vinegar and water mixed together are vinegar and water still, and nothing more, though there may be different degrees of strength, in proportion to the quantity of acid used. An examination of other substances in the table will exhibit similar results to a certain degree. It will be perceived that the composition of sugar, starch and lignin are very similar. These substances exist in almost all vegetables, and the changes which take place in the ripening of various kinds of fruit, is owing to a change in the quantity of these and other substances. In the ripening of fruits, the lignin, the starch, and the water are diminished in quantity, while the sugar is often very much increased. This change depends in a great measure upon solar influences, for fruit ripened in the shade, or in cloudy weather, is generally of an inferior quality. The change of starch to lignin is very apparent, when grain crops have been permitted to stand too long exposed to the heat of the sun, without a sufficient amount of moisture. The straw, also, acquires a ligneous character, which renders it unfit for fodder. Although we are per-

mitted, by scientific investigation, to look into some of the *arcana* of nature, yet there are thousands of changes going on, under the influence of hidden laws, which will forever bid defiance to human investigation. The analyses, the results of which are given in the foregoing table, were made by different individuals, and may, in some respects, be proved hereafter to be incorrect, as the investigations of others have proved before them, and as may be proved after us. The strides which have been made, by analysis, in the investigation of natural objects, have been long and rapid; but there lie broad fields beyond, whose pure air has never been breathed by mortal man, nor contaminated by the smoke from his laboratory.

Six things at least are essential to the germination, growth and maturity of vegetation in general, viz: light, heat, electricity, air, moisture and earth or soil. Without light, no seed or germ can come to maturity. If a seed will germinate at all without light, it must be a pale, sickly, short-lived production. If a healthy plant be removed from the light, it soon dies. Without heat, it will not germinate at all, and may remain thousands of years in a dormant state, as proved by actual demonstration, as by seeds disentombed from the ruins of ancient cities. Without air, or some gaseous mixture containing carbonic acid, no leaf or stock could be produced. Without moisture, there could be no circulatian, and consequently no expansion. All nutritious substances are conveyed to plants in solution. Without electricity, there would probably be no action sufficient to produce either vegetable or animal accretion, or crystalization in minerals. Without the earth or soil, there would be a destructive deficiency in those inorganic substances which are so essential to the growth and maturity of plants.

Vegetables are divided, primarily, into three parts, the roots, the stalks, and the leaves, and on each of these depends their life, as certainly as the life of an animal depends upon the stomach, the heart, and the lungs, which are corresponding organs. The root consists of a crown, a body, branches, fibers, and spongelets. The vigor of a plant depends very much upon the number of its fibers and spongelets. The fibers are the small

roots which branch off from the crown or main root, and the spongelets are the extreme ends of the fibers, which, by their soft, spongy construction, are able to suck up nourishment from the soil, which is conveyed by the circulation of the fibers to all parts of the plant. These fibers and spongelets are increased by a sort of instinct in proportion to the richness of the soil. Cultivation will also increase them to a very considerable degree. When the extreme fibers of a healthy plant are removed by cultivation, they will sprout out more abundantly than before, so that in place of one spongelet, there may be many. The plant, in consequence of the loss of some of its spongelets, will seem to remain stationary for a time, but in a few days it will increase more rapidly than before, owing to the increase of its spongelets and the application of fresh soil. The fibers of many plants descend perpendicularly into the ground several feet in search of nourishment; hence the importance of deep cultivation. This is the case in regard to wheat, flax, &c.

The stalk is composed of three parts, the pith, the woody fiber, and the bark. In trees, shrubs, &c., the stalk or trunk increases by external layers, deposited yearly in northern latitudes, while in many other plants, as in corn, wheat, rye, barley, oats, &c., the growth is by internal accumulation and expansion. In the latter, the pith seems to be the proper medium for the circulation of the juices essential to their growth, while in trees, shrubs, &c., the pith seems to be only a rudimentary substance, rather than an essential part. The woody fiber gives support and stability to plants, while the bark serves as a covering, and often contains some of the most essential substances in the plant, as cinchona bark, from which quinine or quinia is obtained, sassafras bark, from which the oil of sassafras is obtained, and cherry tree bark, which contains prussic or hydrocyanic acid, one of the most active poisons in nature.

The leaves are very essential to the life and growth of plants, though in some cases they appear to be rather rudimentary, the bark appearing to perform the office of the leaves. This, however, is only an exception to a general rule. If the leaves be all removed from a plant as soon as they make their appearance, it

will soon die, as witnessed in trees, where certain insects have stripped them of their foliage. A caution is hereby suggested, not to remove too many leaves from fruit trees by too close trimming. Leaves have the power of inhalation or absorption, and of exhalation or effusion. When examined with the microscope their surfaces are found to be studded with little holes or pores, through which nourishment is taken in and useless matter thrown out. Twenty thousand of these little openings have been counted upon a single square inch of a leaf. These openings differ in form, size and number, in different plants. These pores in the leaves are as essential to the life and growth of vegetables as are the spongelets attached to the fibers of the roots, for the proper nourishment of plants is admitted through both, as certainly as nourishment is conveyed to the animal system through the stomach and lungs. The circulating medium, through which all nutritious matter is distributed to different parts of animals, is the blood, and that which conveys nutrition to vegetables is water. I venture the assertion, then, that no substance which is insoluble in water, whether organic or inorganic, can enter into the circulation of plants, either through their leaves or their spongelets. Writers upon this subject have supposed that plants have the power of choice, in the selection of their nourishment, because they absorb carbonic acid from the air, and exclude to a great degree the oxygen and nitrogen which are so much more abundant. This theory is false, as I shall be able to prove. It is a fact, susceptible of demonstration, that plants absorb large quantities of carbonic acid. It is also a fact that they do not absorb to any great degree the elements which constitute carbonic acid, viz., carbon and oxygen, and for the simple reason that carbon and oxygen are not soluble in water, to any great degree, which is the circulating medium of plants. For the same reason nitrogen is not absorbed to any great degree, either by the leaves or by the spongelets, except in combination with some other substances, which renders it soluble in water. When nitrogen unites with hydrogen, the product is ammonia, which is soluble in water, and is one of the most fertilizing agents in nature. Now the substances which are wanted for the growth of the plant in car-

bonic acid, and ammonia, is the carbon and nitrogen, but as these cannot be introduced into the plant, in their uncombined state, being insoluble in water, the plant has to receive in connection with them, large quantities of oxygen and hydrogen which are not wanted, hence the fact that large quantities of oxygen and water are effused or eliminated from the leaves of plants, if not from their roots. Water, under the most favorable circumstances, absorbs only about three or four per cent. of oxygen, and water that has been boiled, so as to get rid of its air and carbonic acid, can only absorb about one and a half per cent. of nitrogen. Recently boiled water dissolves its own volume of carbonic acid. If a jar of this gas be inverted over water it will be dissolved very gradually, but if it be agitated with water it disappears in a few minutes. This shows the wisdom and design of the Creator in constructing the leaves and their petioles in such a manner that the motion of the air will agitate them, so as to keep their innumerable pores constantly in connection with fresh portions of carbonic acid. The under surface of the leaf imbibes the carbonic acid, and the upper surface eliminates the oxygen, which is set at liberty from the carbonic acid, when the carbon is appropriated to the growth of the several parts of the plant. Although the rays of the sun are essential to the absorption of carbonic acid, as this process ceases during the night, yet when the under surfaces of the leaves of a plant are exposed to the drying rays of the sun, the openings become so dry and closed up that absorption ceases, and the plant withers, as in case of severe drought.

After what has been said relative to the introduction of carbon and nitrogen into vegetables, it seems almost unnecessary to speak of oxygen and hydrogen, the other two organic elements; for as water is composed of them, they can never be wanting except in case of drought. From the fact that all nutritious substances enter into plants in a state of solution in water, we should infer that liquid manures would operate very rapidly to increase the growth of vegetation; and this I believe is proved to be a fact by all who have tried the experiment. It is a practice in some parts of New England to force a very luxuriant growth of

the bell-pepper, (*capricum annuum*,) by sprinkling the plants daily with a solution of hen-dung in water. This must, necessarily, be a very powerful fertilizing agent, as the manure of fowls contains all the fertilizing qualities found in both the solid and liquid manure of other animals.

All animal substances are composed of the elements or compounds which are found in vegetables, hence the fact that all parts of animals increase the growth of vegetation. It would be highly interesting to investigate the manner in which vegetable proximate substances are changed to animal by vital action; how the balance of carbonic acid in the air is maintained by respiration, &c., but I have only space to glance at a few of the more important animal substances.

Many of the animal proximate substances are rich in nitrogen, a substance highly essential to the maturity of many crops, particularly the grain crops, for the gluten in those crops contains a large per centage of nitrogen. The following table exhibits some of the more important animal substances, with the elementary substances which compose them.

	Carbon.	Oxygen.	Hydrogen.	Nitrogen.
Fibrine,	53.36	19.68	7.02	19.93
Albumen,	50.	26.67	7.78	15.55
Gelatin,	47.88	27.20	7.91	16.99
Urea,	19.99	26.66	6.66	46.66

All the animal oils, such as hog's lard, human fat, train oil, mutton suet, &c., are composed of the same elementary substances which constitute the vegetable oils, viz: carbon, oxygen, and hydrogen. The blood of animals is particularly rich in its constituents, containing all the substances which are found in all other parts of animals. This might be inferred from the fact that the blood is the medium by which all nutritious matter is conveyed to different parts of the body. In the similarity of elements, which enter into the composition of vegetables and animals, we observe the same intimate relation which exists between the mineral and vegetable kingdoms. It is a chain from which no link can be struck without destroying the evident design of the Creator. A poet has said:—

"God never made an independent man,
'T would jar the concord of his general plan."

So he never made an independent kingdom. The first which proceeded from his hand, the mineral, rests upon it still; the vegetable is dependent upon the mineral for its existence; and the animal, upon both the vegetable and the mineral. So the higher and more perfect the organization the greater are its dependencies.

THE CULTIVATION AND PRESERVATION OF FOREST TREES.

BY F. B. EATON.

The farmer in New Hampshire has hitherto taken little thought in regard to his forest land, save to devise means for cutting and disposing of its product. Apparently inexhaustible belts of timber stretching through the unsettled portions of the State—the plentiful growth on every eighty acre lot, described as "well wooded," forbade all fears of its scarcity or diminution for many generations. Abundant for use, and almost valueless for sale, no thought was bestowed on its preservation, and whoever invented the quickest method of getting rid of it, was accounted a public benefactor.

Owners of farms who remember such a state of things, have come within a few years to witness a very great change, already productive of inconvenience, and promising to be more severely felt in future. The wonder to us is, not that the forests are diminishing, but that they have not sooner disappeared before the indiscriminate attacks of the woodman.

The trees common to our forests may be enumerated as follows: Maple, elm, beech, birch, oak, walnut, chestnut, pine, cedar, ash, willow, sassafras, bass, cherry, locust, hornbeam, poplar and button wood, the pine family including hemlock, spruce, &c. Of these eighteen kinds there are nearly forty varieties; but as farmers are in general practically acquainted not only with the names but uses of all these varieties, space will not be occupied in specification.

It will be seen that even now, owners of large tracts of wood and timber will be little interested in this subject, as the extent of their possessions would render all ordinary means useless. To proprietors of small lots of from ten to one hundred acres, the inquiry may be of importance, as to what threatens or has

caused the decay of their property, and what means, if any, are equal to its preservation.

The evil originally arose from an inordinate desire to clear large tracts of land, which thenceforth ceased to be encumbered with wood, crops, or indeed anything but debt, or stumps and springing second growth. The force of the husbandman, wasted and weakened in the attempt, was consequently withdrawn from what it might have done on less space, and poor inheritances fell to hard working sons, or were oftener sold for half price to such as chose to buy. Others, having not so many acres, yet imagining the supply to be exhaustless, took no care what, where or when they cut, so that the fire be supported with the least trouble at the time. Straight, thrifty and growing trees were felled, while their crooked and decaying companions remained. A careless direction given to the falling tree often broke the limbs, spoiled the beauty, and begun the work of destruction on a dozen others; so that in a few years the pride and beauty of the forest was ruined, blight and decay seized on its trees, and the "wood lot" was worthless. During this day of extravagant plenty, no time was to be wasted in pruning, or care given to properly thinning out the growth. Broken limbs obstructed the passage of teams, stumps and fallen bodies encumbered the ground, the brushwood full of leaves and crackling twigs, together with the awkward brush fences dried in the heat of midsummer, often gave chance for fire, which is now a most potent source of loss to the owner of wood lands. For if, in the midst of this confusion and rubbish, the careless squirrel hunter leave his kindled fire, or sparks fall from the noisy engine, the winds speed the flames over all the hope of the husbandman.

The building of railroads, and the creation of markets where none previously existed, caused an unhealthy excitement. Stations were crowded with the best wood by those eager for a little ready money, regardless of the future. Land thus inconsiderately cleared is often useless for any other purpose, unappropriated to grazing or tillage, while the careless mode of cutting and clearing greatly retards a second growth, if it chance to be of the oak, beech, ash, birch, or reproductive kind. The tall

white pines, fit for masts, which once grew in such numbers on our soil, are retreating, conquered by the steel of the "lumber king," to the northermost Coos. The oaks once used for building, and fit for ship timber, are less numerous than once, and we have to do chiefly with "second growth." To remedy these evils, which seem to threaten an entire extinction of the forests—to drive us to the swamps for peat, the earth for coal, and to other markets for building timber, at no distant day—the writer proposes to offer a few suggestions, not indeed the results of experience, but such as would doubtless occur to most men reflecting at all on the subject, or in the least conversant with the theories of foresters writing in other countries, who claim to have reduced the matter to a sort of science. If by this any man is induced to think on the subject, or to exercise his ingenuity and reflection, some good may be accomplished.

It would be well for every farmer who has woodland in such quantity that he hopes to make it sustain his fires, and supply an occasional stick of timber for any purpose—and this class I think to be now the most numerous—to have a judicious system of cutting and thinning. The sun and air bestowed on remaining trees will thus increase their growth, while the fuel supplied will be just as valuable, and the increased worth of the land pay for time and extra trouble. Let the under-brush be removed, and destroyed if not available for faggots or fuel, the dead wood and fallen branches cleared away, and all broken limbs of valuable trees smoothly cut off, so as to shed rain, or not catch moisture. If the farmer does not cut his trees himself, he will carefully mark such as are to be felled. If limbs be seized with blight, or any disease such as sometimes affects the oak, maple or pine, they should be removed at once. If it be oak, ash or beech which thus require to be felled, and the stump be cut smoothly near the ground, sloping from the heart, vigorous shoots will spring up, which, by proper care, may be made to supply the place of the parent tree. Young natural plants, happening in favorable situations, where there is room for them to remain, will repay care and pruning. Where the farmer thus regards his trees, the fences will of course be kept good, as

cattle do great injury to young plants by cropping the buds and producing stunted growth, so that what might have been the germ of a fair stick of timber, becomes a knotty and perverse piece of fire-wood, the aversion of him who saws and splits, and the grievous trial of the housewife.

Woodland thus thrown open to sun and air, cleared from unsightly incumbrances, and secured against damage by fire or cattle, will repay all toil, the annual growth should meet a reasonable demand, the property be of greater value, show better to purchasers, be more convenient of access both in winter and summer. A farmer of my acquaintance always burned green wood. It was cut of course mostly in the winter time, and such logs hauled out as could be easiest come at, through the snow, with his horse or oxen and sled. It took twice the quantity to maintain the same fire that it did another who burned seasoned wood, diminishing his forest in the same ratio, and the fire was not half as good when he got it. Economy in fuel is indispensable; and the farmer who cannot afford to clapboard his house anew if it needs, lay tight floors, fit the window sashes to their frames, will, in this climate, have burned more than enough wood in ten years to pay for all repairs twice over. It is of little use to bail a ship without a bottom.

The apparent length of time required to accomplish any thing in the growth of forest trees has deterred many from making an attempt, even when satisfied what to do. Every young farmer, however—and there are beginning to be more of them—may see the good results of such labor in a much shorter time than appears possible to him at the outset; and before he is past labor, or his sons be grown to hold the plow while he drives, he will see, other things being equal, great profit from the insignificant labor of former years. There are many also content to labor, whose age forbids the hope of their seeing the results. Such are benefactors to the race, as much in their sphere as any whose greater fame is trumpeted in the ears of the world. If you cannot write a book for your children to read, plant a tree under whose branches they may sit and tell one to the other your virtues.

By an edict of the first Napoleon, the landholders of France

were required to maintain a certain number of acres of wood on each farm, and where trees were not, they were planted. So around many farms was stretched a double row of trees, which have at the present time attained good size, adding much to the value and beauty of the plantations, and furnishing throughout the empire plenty of wood and timber for private use or the necessities of the state. These are better monuments to the genius of the Emperor than any triumphal arch. Would that every farmer in this State, whose woodlands are growing thin, or who cares for fine looking grounds, would follow this example. I have heard it said that trees shaded the ground, and so prevented a full crop; but a farm conducted and manured as it should be, would bear a double row of maple, ash or elm about its fields, and even then thrice excel the gains of those niggardly cultivators who do things by halves. In some situations the shelter of a wood is of great service, and in our bleak clime a living guard on the exposed sides of some fields would be worth much. The training of particular sticks so as to produce timber may be well worth a trial. By cutting off a limb when needful, and removing all obstructions to a straight upward growth, a valuable piece may be the result. Even if no more than ten or twelve out of the whole wood be selected, they may in time be worth ten, twenty or even fifty dollars apiece. This is not mere supposition, but what has often been done. For similar reasons to those adduced in the commencement of this article, the cultivation or creation of forest trees has not been attempted, so far as I know, in the State, or at least to no great extent. In regard to the modes of planting, sowing or in any way procuring a nursery of forest trees, the writers greatly differ. It is however fair to infer that those who in their operations most closely follow nature, will be the more likely to succeed. Not indeed as to that sometimes received, but erroneous belief, that trees growing on a poor and scanty soil must hence flourish better when removed to a like soil. Nature, in spite of this barren ground, has forced her trees through it, and drawn what of nourishment she might from its meagre resources. She asserts her omnipotence when she plants the oak in the fissures of a rock, and brings to the aid of

the springing acorn the forces of a little earth, air and water, or when she shades a small space in the burning desert with the grateful palm. To attempt to overcome these difficulties, when upon us, and to make the best of a poor, rocky and sterile farm, is praiseworthy, but it is not to be supposed, hence, that trees, like all other products, will not richly compensate the laborer for his pains. Ordinarily they will grow on the same soil which has once produced them, if it has not been exhausted by bad cultivation, so that no farmer need neglect his trees on this account, but the better preparation will insure the better growth.

A little observation will enable one to determine to what trees his soil is best adapted. Pine, spruce or hemlock will do well on thin and light soil. Oak, maple and ash grow in heavy, clayey lands. The beech may be raised in sandy locations, and I have known the elm to flourish with great vigor and grow rapidly in a similar situation. If trees are to be transplanted, the spring is the best time to warrant their living. They should be in diameter from two to three inches, and not taken from thickly wooded places, where they run up very tall, as high trees are more likely to be shaken and disturbed by the wind. A little pruning will do no harm, and care should be taken that the fibers of the roots be laid naturally, or cut smoothly off. They should be well watered at setting, and then not too frequently afterwards. Trees are as often drowned as starved. Consider what nature does for them by way of rain, all the while making sufficient allowance for the change of circumstances. Set them at nearly the same depth you found them, and take means to have them secured from wind by stakes and thongs. One or two rocks may be of service above the roots, but not many. The best way, however, in which to obtain a forest plantation is from the seed. We will take, for instance, the seeds of the oak, chestnut, beech, walnut, maple and ash, which, having been carefully dried in the sun and air, should be preserved in a cool, dry place until spring. Of these, the larger and harder kinds should be covered with two inches of mould, and the others, or smaller seeds, being mixed with an equal bulk of sand, to insure room for germination, be spread thickly on the ground and covered with one inch

of mould. The young plants may be transplanted to their places, at the following sizes, as given by Browne, in the American Sylva:

Sugar Maple,	from 6 to 24	inches	in height.	
Chestnut,	" 12 to 30	"	"	
Beech,	" 9 to 30	"	"	
Ash,	" 6 to 20	"	"	
Hickory,	" 10 to 30	"	"	
Oak,	" 6 to 30	"	"	

If the farmer now has a half acre of ground ready to receive his trees, some over 1700 may be set, allowing a space of four feet apart each way. One foot less will answer for fir, hemlock or pine. If a favorable time be selected, and the ground be just moist enough, the plants will soon catch and grow rapidly. Especially if the ground be rich, it will be found that in three years the plants have far outgrown others starting at the same time in the natural forest. They will need neither staking nor watering. In subsequent years, when the trees begin to require thinning, the best and most thrifty may be left, and the fuel obtained will pay for the trouble of thinning. In twenty years, the farm which, on your taking possession, had no wood, may have a thrifty, growing forest, as heavily wooded as you wish, which *may* have been produced on a soil too rocky for aught else, and the result of two or three years care at the outset. Farmer, is not the subject worth at least a moment's thought? Can you—supposing the need to exist which renders of less value so many farms—can you better devote a few months' labor, or get surer interest on fifty or a hundred dollars? These suggestions are offered with the hope that more experienced minds may consider whether similar or better means may not be used to renovate the decaying forests, and save to us the noble company of the trees.

IRRIGATION.

Anything which can impart fertility to exhausted acres, or take the place and perform the duties of heavy manure, is well worthy of the farmer's attention. Among these granite hills, nature's favors are by no means granted with a lavish hand, and the only real dependence is hard labor and plenty of it. But we need not hence discard invention or refuse the aid whereby many an hour's rest, study, or relaxation, may be afforded. Fire, air, earth and water stand ready to do our bidding, if assistance be asked in an intelligent manner. The subject of irrigation has hitherto occupied little attention in the agricultural studies of our farmers. Contented for the most part if they were so fortunate as to own a tract of natural meadow watered by some brook, they have seldom sought the aid of water to fertilize their dry upland fields. Many acres which produce well in a wet season, are of little or no profit in a dry time. Mr. Coleman, after speaking of the magic effects of water artificially gathered from springs above and spread over fields on the barren Exmoor hills in England, well observes: "New England, especially, and many parts of the other States, are full of sites and means for such improvements; and in many cases the expense and labor of leveling the land, bringing the water into a body, and placing it under control, would be met many times over by the profits of such improvements." It is perhaps a little singular and an index of the American disposition to ignore ancient things, that when the agricultural pursuits of so great a portion of the world almost live by this practice of irrigation, that it has received so little attention among us. The descendant of the Ptolmies as he moves about, snuffing up with every breath royal dust, now no better than the nostrils of the slave it tickles, draws with rude machinery the waters of the Nile, most muddy and beneficent god, and therewith imparts fertility to his thirsty and barren acres, just as it did three thousand years ago. The Nestorian of the Persian

mountains conducts the rills, in hollowed reeds, to the platform scarce bigger than a swallow's nest, which he has been able to snatch from the jagged rocks, and so between the scorching sun on the one hand and the avalanche of snow on the other, secures his beggarly crop. From time immemorial the "catch water" meadows of Switzerland, and the flooded Cingalese rice fields have borne witness to the value of water. For many years in the dark ages the fertile plains of Lombardy, then and now attest the skill of the monks and the effects of irrigation. Of course I have no desire to construct a sweeping argument from such a broad foundation. While water serves the wheat of the Egyptian and the millet of the Persian, it drowns out the cabbages of the Dutchman, and upon all heavy clayey soils must be got rid of rather than introduced as an ally. Not having at hand any chemical analysis of the water of rivers and brooks as found in this State, I am constrained to give the following, which shows the amount of foreign substance in 10,000 parts of Thames water, after most of the mechanically suspended matter had subsided:—

Organic matters,	0.07
Carbonate of lime,	1.53
Sulphate of lime,	0.15
Muriate of soda,	0.02

In the waters of the Clyde, in Scotland, was found in the same proportion:—

Common salt,	0.369
Muriate of magnesia,	0.305
Sulphate of soda,	0.114
Carbonate of lime,	0.394
Silica,	0.118

The Itchen, in Hampshire, a very celebrated stream for irrigation, contains of:—

Organic matters,	0.02
Carbonate of lime,	1.89
Muriate of soda,	0.01
Sulphate of lime,	0.72

This is believed to afford a pretty correct idea of the contents of most rivers, and it will be perceived that many things necessary for the nourishment of plants are here found. There are

few rivers or brooks that do not contain carbonate and sulphate of lime, and hold in solution more or less of organic matter. Bacon, in his Natural Philosophy, says: "The sixth help of grounds is by watering and irrigation; which is in two manners: the one by letting in and shutting out waters at seasonable times; for water at some seasons, and with reasonable stay, doth good; but at some other seasons, and with too long stay, doth hurt; and this serveth only for meadows which are along some river. The other way is, to bring water from some hanging grounds where there are springs, into the lower grounds, carrying it in some long furrow, and from those furrows drawing it diverse to spread the water. And this maketh an excellent improvement both for corn and grass."

"In general," says Sir Humphrey Davy, "those waters which breed the best fish are the best fitted for watering meadows; but most of the benefits of irrigation may be derived from any kind of water." The farmer may have a pretty sure index of the value of water for fertilizing purposes by the vigor of the grasses and plants along its margin, which is a much more simple and conclusive proof than can be afforded by any analysis whatever. In this case no matter how pure or limpid the stream, its effect may be reckoned on with certainty. It is, however, generally the case that the more impure the water the greater benefit it is to the land. Thus the sewerage water of Edinburg, which is so situated as to be available for purposes of irrigation, produces the most astonishing effects. The grass of these meadows is cut from four to six times a year and given green to milch cows. It brings from $100 to $150 per acre, per annum, at public sale. "In the spring of 1821, 30 acres of waste land called the *Freegate Whins* and 10 acres of poor sandy soil were leveled and formed into irrigated meadow, at an expense of nearly $5000. This whole pasture was let previously for about $500 per annum. It now rents for from $75 to $100 per acre." This is probably one of the most extraordinary instances on record, as the *Freegate Whins* was nothing more than mere sand deposited by action of the sea from time to time.

To come from great and far off examples to some small ex-

periments which happen to have fallen under my observation, may perhaps be as convincing, so far as regards the practicability of the theory, as any argument. The west side of Concord Square, in Manchester, was probably as unpromising and barren a spot as any farmer in New Hampshire will have occasion to try experiments on; being composed of common sand. Loads of street manure, oyster shells, and the like, had from time to time been deposited upon the surface, but never enough to form any thickness of soil. At the instance of Mayor Smyth, the present efficient Treasurer of the State Agricultural Society, the reservoir in the centre of the common was so arranged that it could be overflowed, and this portion of the ground covered for two or three days at a time to the depth, in some places, of several inches. The effect was striking and instantaneous, and although the irrigation was conducted without method or regard to anything but a dry season, still two considerable crops of grass were cut, where, had it not been for this, all vegetation must have ceased. A gentleman of my acquaintance some years since was so fortunate as to own a pasture, some parts of which were singularly unpromising and so rocky as to give occasion for that respectable old joke about sharpening the sheep's noses. Indeed, the only smooth surface consisted of a range of hills with a southerly slope. At the foot of the hills ran a small stream, the source of which was no more than a half mile distant, but so situated as to receive the wash of a road. It then passed through a field and bore upon its margin most luxuriant grass, coming into the pasture with a considerable fall. By the aid of a water level, a ditch was so constructed along the side of the hills as to divert a large quantity of the water, at a very slight fall. At proper intervals sluiceways were opened in the side of the ditch and the slope irrigated at pleasure. The effect on this hard gravelly soil was good. The cattle grazed where they had not dreamed of stopping before, and the value of the pasture was much increased. The whole expense of ditching and constructing a dam to turn and control the brook was but trifling, while the advantage remained permanent and secure. The objection made that "this feed had no heart in it compared to that growing on

land with sufficient natural moisture" although not entirely false, yet loses all its weight when we know that it was produced where nothing grew before. There is hardly any soil which may not be formed with more or less advantage into water meadow. A heavy clay soil is most unsuitable. It is a matter of importance that the means of getting rid of the water be good, as without thorough drainage in the intervals of irrigation nothing will be accomplished. For this reason a light spongy soil is better, and one having a substratum of sand or gravel still more preferable, as it renders drainage less difficult. Most of New Hampshire soils are of a kind to be benefitted by irrigation. Although this State has been called the Switzerland of America, it is certainly behind that ingenious people in its attention to fertilizing water. With them every care is taken to avail themselves of the falling rains, which are carefully conducted over the pastures and fields, and gathered from the paths and gulleys in conduits. Thus are constructed *catch water* meadows, the use and profit of which no one has called in question since the days of Virgil, nor indeed has greatly improved upon that poet's suggestion:—

> "Deinde satis fluvium inducit rivosque sequentes
> Et, quum exustus ager morientibus aestuat herbis,
> Ecce supercilio clivosi tramitis undam
> Elicit: Illa cadens raucum per levia murmur
> Saxa ciet, scatebrisque arentia temperat arva."
>
> *Geor. lib.* 1. 104–10.

The first thing to be considered in regard to a theory, is its practicability, its cost and probable benefit. When Bacon mentioned his two manners of irrigation, he had not the knowledge of modern invention, and could not foresee that the Persian wheel, the Indian bullock and bucket, would be left immeasurably in the distance by the steam engine, or conveniently and cheaply superseded by the hydraulic ram. But the age has so far outgrown the speculations of the wisest and boldest, that the man of wealth may if he chooses, force the river to the top of his most barren hills, and send it in fertilizing streams again to the valley; or the humblest farmer may turn the forces of the brook to his aid, so that its jets, be they singly never so puny and insignifi-

cant, shall together clothe his fields with verdure. Those who were present at the State Fair in 1853 cannot fail to have noticed the supply of pure water furnished for cattle. South of the Rye Field, and some forty or fifty feet below its level, a clear spring gushed from the side of the hill. A rod or two down the stream thus formed, were placed a couple of small hydraulic rams which were kept by the fall in constant motion. Slow but sure the water mounted to the plain and was gathered in reservoirs made of casks. The supply was ample, and had the field been of a sufficient slope, would have well irrigated the whole thirty acres. I suppose that the expense of irrigating in that way with a single machine, and permanent reservoir at an elevation of twenty or thirty feet from the source, would not exceed twenty-five dollars, unless the farmer chose to be at more cost for the sake of appearance, or durability. The return which he may be entitled to expect depends on the nature of the soil, the quantity of wash contained in the water, the good judgment with which it is let on or drawn off the land, the nature and kind of the crop sought, the grasses selected, and such other contingencies as are inseparable from all outlays of the kind. If the experiments of which we read be any index or guide, certainly no venture could be made with greater promise of success, and when we consider the permanency of the fertilizing agent when once established, it is a strong argument, other things being equal, for its adoption.

Allusion has been made to "catch-water meadows," as existing in hilly regions, where the water is collected from springs, brooks or rivulets, formed by the rains, and brought down by successive gutters or trenches. In Coleman's account of Irrigation in Somersetshire, we learn of Mr. Roals' meadows, "He set out the watering gutters by a level, giving them one inch fall in every ten feet. They were cut nine inches wide and three deep. If the land has a gentle slope, the gutters may be put sixty feet from each other; but if it be very steep, and there is a good flow of water, they may be put seventy or eighty feet apart. When he finds the water sink too fast into the land, he spreads fine earth or road scrapings over the surface, in order to fill it up, that the water may pass over to the next gutter. He

has drained and formed into meadows for irrigation thirty acres, which yield from a ton to a ton and a half of hay per acre annually." The profit was stated to be one pound interest for a little less than every two pounds invested—certainly a return sufficient to warrant at least a trial from any one whose lands afford the chance. Again: "The water meadows at Audley End were formed in 1841, from old pastures, without disturbing the surface, except for the purpose of adjusting the levels and cutting the ditches; but in consequence of the inequality of the ground, many hollow places were filled up with fresh mould, and the product was not much increased the first year of irrigation. * * * It may be presumed that the average produce yielded the last three years has been about thirty-one tons of grass, or eight tons of hay per acre." This it must be remembered was on alluvial soil in low land, and in the vicinity of a small stream or river. We see thus that by the testimony of concurrent witnesses, the value of water for fertilizing soils is held to be very great. One marked advantage of irrigation in our northern latitude would be the increase of temperature, as water, especially when taken from springs, warms the land, and when let on in the spring to grass lands, counteracts the effect of severe frosts. I cannot do better in confirmation of the ideas I have advanced, than to mention a few of the advantages enumerated by Thaër, the celebrated German agricultural writer:

"Almost all water carries with it fertilizing particles, which are exceedingly beneficial to vegetation. By means of it we obtain and make use of a species of manure which would be otherwise lost to vegetation. It renders us in a measure independent of temperature; it produces an eminent degree of fertility in land which before yielded but a very small amount of produce."

The average increase in the amount of crops, according to the best evidence, is four fold. Trusting that these observations will excite among the farmers of New Hampshire at least a share of attention, the remainder of this essay will be devoted to a few directions, as plainly given as possible, whereby some practical application of the principle of irrigation may be made. Nature

herself has constructed a most magnificent machine for such purposes that ever was conceived of, where the Nile, bearing in its bosom the disintegrated particles of Nubian granite, it imparts life and vigor along its banks for hundreds of miles. As we have not this machinery to so great extent among our hills, it becomes us to see if some use may not be made of the brooks and rivers that we have, as well as natural springs, so many that in fact hardly a single farm is destitute. Where, then, such means are at command, the farmer should know how to make a *water meadow*.

The best soil for the purpose is a good gravel. We will suppose a brook or mill stream to be flowing through some part of the farm. As far towards the source of the stream as the farmer has control, or as will answer for his design, he may build a dam, or if he chooses to be at the expense, a wier with a gate through which the water can be conducted into a ditch or canal. The aid of a water level will enable him to construct this ditch along the upper borders of the field, at a fall of one inch in ten feet, to such distance as the nature of the ground may permit, or the extent of his field requires. This is designed for the main canal, and now holds its waters in readiness to be spread over the ground, which must be made as level as can well be, in order that the depth of irrigation may be uniform. Let the main reservoir now be pierced at short intervals, by transverse conduits, with sufficient slope to allow the water to run. Each of these tranverse ditches should be furnished with gates, or be so contrived as to be easily stopped with turf or stones, when the design is to draw off the water from the field. The embankments of the conduits being in their turn pierced at regular intervals, on opposite sides, or as the slope may allow, will enable the operator, in a short time, and with great facility, to flood the whole meadow uniformly. If now the slope happens to be considerable, or the main channel is carried generally parallel with the course of the brook, the water having finished its work, can easily be gathered again into its original bed. If it be carried some distance from that course, and on to level land, its removal must be effected by under drains, for be it noticed that unless the removal

be thorough and complete, the experiment will be half a failure. The water having deposited with the soil whatever fertilizing substances it contained, and imparted such of its properties as chemical affinity requires, is no longer a benefit, but an injury, and the sooner and more completely got rid of the better. This is proved, not only by the experience of those who are unable to effect thorough drainage, but from the fact that having once passed through and irrigated a field of considerable extent, it has little or no beneficial effect when gathered and conducted over a second or third. If the situation will permit, the water may be let on, and continued through the winter months, only letting it off when the weather affords an opportunity for a few days at a time. Or it may be let on as early as possible in the spring, and continued until the frost is out of the ground, when it should be drained. After the grass gets to the height of two or three inches, let it on for twenty-four hours, at intervals of three days, twice or three times. After feeding off the grass, if it be used for a pasture for milch cows or sheep, or carrying it green to their stables, let the same process be repeated. By this method three good crops at least should be obtained in one season, and often four or six. If the brook or river does not enter the land at a sufficient elevation, the hydraulic ram may be used to advantage, and by means of a reservoir constructed at a required height, the irrigating canal may be supplied with water. It is perhaps worthy of consideration whether the water thus collected might not be enriched with some manure. Several advantages would result from this, such as saving in transportation, evenness in spreading, and the superior quickness of growth known to result from the use of liquid manures. Another method of irrigation is to collect the water that may arise from springs, or accumulate from thawing snow or falling rain, on the hills, and conduct it gradually and evenly down over the slopes it is designed to fertilize. For this purpose, it is first conducted into a broad, shallow trench, extending along the upper edge of the slope. When this is full, it overflows, and the water is carried over the surface from forty to seventy feet, according to the nature of the descent, and caught by another trench. Thus the land is laid

out in successive beds, until at last the superabundant fluid is carried away by a drain. The farmer may readily see, without more particular directions, the principle involved, and can apply it with such modifications as his experience suggests, or the nature of his soil and and situation of his farm require.

It is not easy to see why this magic talisman, which is said to have the power to cover the desert with verdure and make the barren plains blossom like a rose, may not be induced to cast its emerald robe upon the brown hills and exhausted pastures of New Hampshire.

COUNTY SOCIETIES.

ABSTRACT OF REPORTS.

ROCKINGHAM.

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HENRY F. FRENCH, Exeter.

Vice Presidents.

JAMES PICKERING, Newington;
JOSIAH BARTLETT, Stratham;
MOSES EATON, JR., South Hampton;
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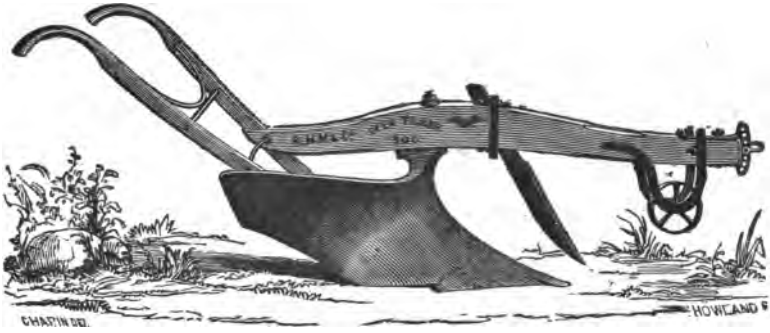
Secretary.

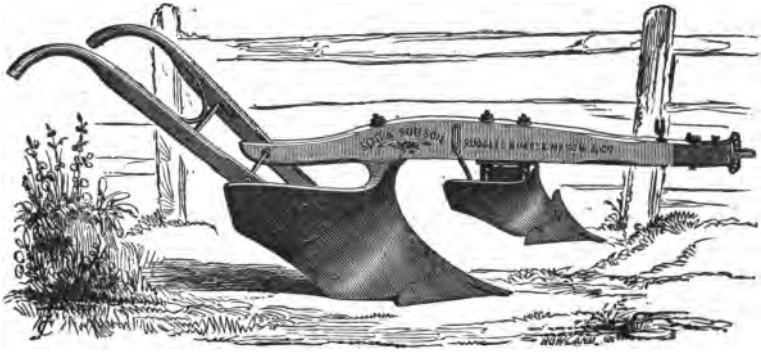
JOSEPH T. GILMAN, Exeter.

Treasurer.

RETIRE H. PARKER, Exeter.

RUGGLES, NOURSE & MASON'S PREMIUM PLOWS, AT NEW HAMPSHIRE FAIRS.





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THE FAIR.

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For more than twenty years no Cattle Show had been held in Rockingham county, the old Agricultural Society having closed up its affairs in 1829. The new Society organized the past year, appointed for its first exhibition Thursday, the 15th day of September. Liberal preparations were made by the citizens of Exeter, for the occasion, although there were not wanting humbuds who echoed the ill omened cry that it could not succeed.

The day came, and with it a storm from the southeast, such as are only introduced on extraordinary occasions. In consequence, the officers adjourned the Fair until Friday, hoping for better omens, though sorely distrustful.

Friday came, bringing a fair west wind, and clear sunlight over the green and beautiful lawns and trees of old Exeter, and it was manifest at once that the power which guides the storm had not visited the enterprise in anger.

At about seven o'clock the noise of preparation commenced. Officials on prancing steeds were seen hurrying through the streets, while the lowing of cattle, the bleating of sheep, and the rattle of wheels, sent up a confused sound. At eight o'clock the Brentwood band, in an open carriage, drawn by four elegant horses, made its appearance, and the performances of the day began.

The grand entry of the Hampton Falls delegation of manufacturing ladies, was a beautiful opening of the display. The band, led by the marshal, went out to meet them a mile from the village, and escorted them into the town. Twenty yoke of fine oxen, with their horns tastefully dressed in blue and yellow streamers of ribbon, were attached to a car, mounted upon four wheels, and containing twenty-seven young ladies of Hampton Falls. The car was roofed over with green corn leaves, for a

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screen from the sun, and carpeted and cushioned like a church. The outside was beautifully decorated with evergreens and boquets of flowers. Indeed, no part of the wood, not even of the wheels, could be seen, but it was an elegant combination of the brilliant colors of autumn flowers, with the fresh green of the forest trees and vines. Upon the sides, curiously formed in large letters, with vegetables of all kinds, was an inscription of the name of the town. Snugly seated among the fair occupants of the car were seen the President of the Society, and the orator of the day, who had gone out to pay their early respects.

On the square, teams from other towns were added to the procession, to the number, in all, of some seventy yoke of oxen, and at nine o'clock, by the music of the band, and with occasional songs by the ladies, amid shouts and cheers of the multitude already assembled, the procession moved on to the cattle grounds by the depot. Coaches were then furnished by the Society to the ladies, who were driven about the grounds to view the animals, and then escorted by the marshals to the exhibition hall. All honor to the ladies of Hampton Falls, who have set an example to their sisters through the county of incalculable value to the new Agricultural Society.

About one hundred and twenty yoke of oxen were upon the field, and the pens contained, of horned cattle, about one hundred head. Gentlemen from Massachusetts, familiar with such scenes, declared that so fine a display of working oxen, they had never witnessed.

But seven teams were entered for plowing. Although the knowing ones could well enough see that no great affair could be made of this part of the show, yet nothing could exceed the interest manifested by the spectators, to most of whom the spectacle was new. The plowing was tolerably well done, but many such trials are wanting, to bring the farmers of Rockingham up to their proper mark in this department.

At the close of the plowing match a procession was formed of the officers and members of the Society, and invited guests, in Pine street, and marched to the church, the Hampton Falls car, with its twenty yoke of oxen, bringing up the rear.

Simon Brown, Esq., of Massachusetts, editor of the New England Farmer, delivered the address. Like all that proceeds from his pen, the performance was full of good sound sense, expressed in modest and appropriate language, full of "words fitly spoken," "like apples of gold in pictures of silver."

The old town hall was elegantly decorated with evergreen and oak leaves, by the young ladies of Exeter, whose presence at the tables added not a little to the attractions of the scene. Tables, more than two hundred feet in length, in all, were arranged through the room, completely covered with fruit and flowers, and articles of needle-work, and embodiments of a thousand curious fancies, while the benches were loaded with mammoth vegetables, and the walls adorned with pictures and embroidery. The show of fruit was a surprise to all. Gentlemen present familiar with the horticultural shows of cities, said that no finer display of peaches and pears could be produced in New England. Portsmouth is noted for its fine fruit, and much was hoped by the Society from that quarter, but no single specimen from Portsmouth appeared upon the tables!

To give some idea of the number of persons present on the occasion we have more reliable data than mere estimates, which ranged all the way from five to ten thousand. An old gentleman was heard to say that he had lived in Exeter sixty years, and that never before had he seen so many people in the town together.

The exhibition at the hall was free to members of the Society, more than four hundred in number, and to their families, and all who claimed to be such, yet more than two thousand persons paid an admission fee at the door! The committee of managers at the hall estimated that more than one half entered without payment.

At four o'clock the music called together in front of the Squamscot House a crowd such as is seldom anywhere witnessed.

The President, Mr. French, from one of the porticos, read the reports of the various committees, while "a sea of upturned faces" anxiously awaited the decision.

He also introduced to the meeting several gentlemen from abroad, who made short addresses. Col. Newell, President of

the Essex Society, a veteran in the cause of agriculture, was among them. He complimented, in the highest terms, the exhibitions of cattle and of fruit, pronouncing them equal to any he had ever seen. Remarks were also made by Mr. Farnum of Boston, and by Mr. Brown, the orator, who called forth the loud applause of his hearers.

At about six o'clock the crowd dispersed, and most of the people from abroad were supposed to have left town. The evening, however, brought a crowd of people again to the hall, and the committee at a late hour was obliged to insist upon closing the doors, and the first annual exhibition of the Rockingham Fair.

REPORTS AND PREMIUMS.

STOCK.—BULLS.

Fifteen bulls were entered for premiums. Awards were made as follows:—

J. T. Gilman, Exeter, first premium on native or mixed breed, ... $5 00
Daniel Smith, Exeter, for second, ... 3 00
Jeremiah Godfrey, Hampton Falls, first premium on Devons, 5 00
J. B. Cilley, Deerfield, for second, ... 3 00
George Weeks, Greenland, first premium on Durhams, ... 5 00
Joseph Cilley, Nottingham, first premium on Ayrshires, ... 5 00

COWS.

George W. Furnald, Exeter, first premium on native, ... $5 00
David W. Gorham, " " " on Durham mixed, ... 5 00
John Lowe, jr., Exeter, second premium on Durham mixed, heifer, ... 3 00

The weight of this heifer was 1,190 lbs. Mr. Lowe also entered a Durham mixed cow, weighing 1,225 lbs.

Mr. Furnald's cow produces, on an average, forty-five pounds

of milk per day; in four weeks, commencing May 24th, fifty-two and a half pounds of butter were made from her, after reserving two quarts of milk each day for family use.

H. F. French, Exeter, first premium on Devons,.....5 00

Mr. French's cow, "Blossom," four years old last spring, three-fourths Devon and one-fourth Durham, gave thirty-seven pounds of milk per day, on an average, and made nine and a half pounds of butter the week ending June 12.

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HEIFERS.

Of these thirteen were entered for premium.

John M. Weare, Seabrook, for best two years old, mixed, $2 00
Solomon J. Perkins, Exeter, best yearling, mixed,..... 2 00
Jos. Brown, Kensington, best Devon yearling,..... 2 00

—

WORKING OXEN.

This department of the exhibition was exceedingly fine. The number of pairs entered for premiums was twenty-one.

Chase P. Blake, Epping, first premium, ...$5 00
J. T. G. Haley, Exeter, second premium,..... 4 00
Zebulon Sanborn, Epping, third premium,..... 3 00
Joseph T. Gilman, Exeter, fourth premium,..... 2 00

—

TOWN TEAMS.

It was specified that these teams should contain "not less than ten yoke." The Kensington team contained twenty-two pairs, Hampton Falls team twenty, the Epping team sixteen, the Exeter team thirteen. The premiums were:

Epping, first premium,.....$10 00
Exeter, second premium,..... 8 00

STEERS.

Jos. Brown, Kensington, one pair four years old, first premium,.....$4 00
Zebulon Sanborn, Epping, second premium,..... 3 00
Jacob M. Rowe, Exeter, " " 3 00
Joseph H. Weare, Seabrook, three years old, do., ... 3 00
Jas. H. Butler, Nottingham, three years old, third prem., 2 00
W. H. Veasey, Brentwood, two years old, do., ... 2 00
R. J. Sanborn, Deerfield, two years old, do.,..... 2 00
H. G. O. Rundlett, Epping, two years old, 2d do., ... 3 00
John Weare, Hampton Falls, one year old, do.,..... 3 00

FAT CATTLE.

J. L. Cilley, Exeter, first premium,.....$5 00

CALVES.

Six were entered for premiums.

Jonathan Tuck, Kensington, one five months old, Durham mixed, first premium,.....$2 00
N. P. Cram, Hampton Falls, one five and a half months old Durham mixed, second premium,..... 1 00

SHEEP.

But twenty-two were entered for premiums.

Oliver Jones, Raymond, on five sheep, first premium,....$4 00
John H. Kimball, Exeter, on six do., second premium,... 3 00

HORSES.

Thirty-five fine animals were entered for premiums.

Henry H. Smith, New Market, on best stallion, five years old, weight 1000 pounds,.....$3 00
E. H. Valentine, Exeter, on best gelding, nine years old, 3 00

Samuel Hoyt, Newington, on best work horse, five years old, ... 5 00
George Barker, Stratham, on best three years old colt, weighing 1107 pounds, ... 3 00

SWINE.

Aaron Prescott, Hampton Falls, best native boar, ...$3 00
J. T. Gilman, Exeter, best Suffolk do., ... 3 00
Daniel W. Ladd, Epping, on second best do., gratuity,.. 2 00
Weare N. Shaw, Kensington, best breeding Suffolk sow,. 3 00
John M. Weare, Seabrook, second best do., gratuity, ... 2 00
Charles Lane, Exeter, best fat hog, gratuity, ... 2 00
Retire H. Parker, Exeter, second best do., gratuity, ... 1 00

POULTRY.

The committee awarded R. W. Currier, East Kingston, the premium of $1 00 for the best exhibition of fowls, and recommended that a gratuity be presented to John Smith, jr., of Brentwood, for his three Bremen Geese; also a gratuity to Lewis G. Sanborn of Hampton Falls, for his wild Turkeys.

BUTTER.

Mrs. Jonathan Tuck, Kensington, first premium, ...$4 00
Mrs. John Smith, jr., Brentwood, ... 3 00

The committee report that "all the butter exhibited was of an excellent quality."

PLOWS.

John French, Kensington, first premium, ...$3 00
Charles H. Marshall, Brentwood, second premium, ... 2 00

OX YOKES.

Daniel Wiggin, Stratham, on best ox yoke,.....Diploma.

APPLE PEARER.

A. S. Thayer, Exeter,.....Diploma.

LEATHER.

R. H. & N. Parker, Exeter, best six calfskins,.....	$2 00
Moses Sanborn, Kingston, second best do.,.....	1 00
Orin Head, Exeter, best harness,.....	2 00
John T. Blake, Exeter, best boots,.....	1 00
R. H. Smith, Exeter, second best do.,.....	50
Stacy & Nudd, Exeter, best ladies' walking shoes,.....	1 00
R. H. Smith, Exeter, second best do.,.....	50

HATS.

Abner Merrill & Sons, Exeter, for the six best fur hats,.. $1 00

CARRIAGES.

Orin Head, Exeter, for best chaise,.....$5 00

PLOWING.

The plowing match was an exciting scene, and was watched with intense interest by about three thousand persons. Only six teams were entered, and each, except that belonging to Samuel W. Leavitt of Exeter, was composed of two pairs of oxen, and driven by one man, while another held the plow. Mr. Leavitt's plow was drawn by a single pair of oxen, and held by the driver, yet but two teams performed their work quicker or better. The premiums awarded were:

John T. Batchelder, Hampton Falls, first premium, ... $6 00
Stephen Brown, jr., Kensington, second do., ... 5 00
Samuel W. Leavitt, Exeter, third do., ... 4 00
Charles H. Marshall, Brentwood, fourth do., ... 3 00

REPORT OF THE COMMITTEE ON FRUIT TREES.

Within the past few years there has been a great change in the aspect of our fruit orchards. We are beginning to learn that it is as easy to raise choice fruit as the sour, crabbed varieties that flourished in "old hard cider times."

Though in some instances these old trees have been grafted anew, yet in most cases they have been torn up root and branch, and in their place a new orchard is springing up in strength and beauty. But experience teaches us that in order to succeed in raising fruit, something more is necessary than choosing the thriftiest trees and setting them in straight rows. Thus we are sometimes pained to see a fine young orchard left to its fate, to live or die as the case may be; the partition fences broken down, the young and tender limbs cropped by stray cattle, the trees covered with moss and yellow leaves, and the owner, wondering why he has no better luck in raising fruit, in despair seizes his axe and levels the unsightly trees with the ground; in his whole proceedings reminding us of the man who, as we read, "began to build, but was not able to finish."

Not so were the orchards which were submitted to the inspection of your committee.

The first apple orchard visited was owned by Mr. John French of Kensington, and contained one hundred and twelve trees, one-half set in 1846, and the remainder in 1848. The ground has been cultivated all the time since setting out. The trees were remarkably even in size, with the tops of good shape, and showed a rapid growth.

The next in order was a peach orchard, owned by Jeremiah Godfrey, Esq., of Hampton Falls. It contained fifty-six trees, set in 1848; the soil cultivated every year, but not planted.

The crop the past season was somewhat less than one bushel per tree, on an average. It was easy to see that great pains had been taken in training these trees, and especially in heading in, as it is termed; one-half of each year's growth being cut off in the fall or spring.

Our next visit was to the residence of John Rowe, jr., of Exeter. His orchard contains ninety-four trees, set in 1842. The ground has been cultivated and manured, and great care taken with the trees in every respect. This orchard has already begun to make some return for the labor bestowed upon it, it having borne in 1852 some fifty barrels of the first quality. In passing, your committee would remark that, aside from his orchard, there is much to interest the farmer on Mr. Lowe's premises. The beautiful arrangement of his grounds, the neatness and order displayed in and around his buildings, and above all, the accommodating and gentlemanly deportment of the proprietor, blend in pleasing harmony, and form a bright picture on the bright side of life.

We next visited the large and beautiful orchard owned by Mr. Littlefield, of Greenland, containing three hundred and sixteen apple trees, and one hundred and twenty peach trees, set with the apple trees alternately. One hundred and fifty of the apple trees were set in 1844, and bore in 1852, one hundred and eighty barrels; the remainder were set in 1848. The peaches bore in the last season nearly two bushels to a tree, on an average.

A different route now took us to the orchard of Mr. William Tenney, of Chester. His orchard contains two hundred and fifty-nine trees, of nearly every variety, though a large proportion are Baldwins.

Our last visit was to the orchard of Mr. Levi Emery, Jr., containing fifty-six trees; thirty-five set in 1847, the remainder in 1850. This was a noble lot of trees, and speaks well for the enterprising spirit of the owner; the ground was well cultivated, the trees of good shape, and frequently washed with some solution, which was death on moss and insects, and at the same time imparted a vigorous appearance to the bodies.

The operations of Mr. Emery might be taken as an example by his brother farmers, of what might be done by the right kind of farming.

We will not state the amount of squashes which he raised on a few rods of ground, or of the beets and cabbages raised on less; but we will merely say that if he perseveres, he will have no occasion to go to California, for he has a mine of his own, more sure, more profitable, and far more pleasant to operate.

On a careful examination, and with a desire to render justice to all, your committee make the following awards:

Levi Emery, Jr., Salem, on apple orchard, first premium, $5 00
Abner Littlefield, Greenland, second premium, ... 5 00
" " on peach orchard, first prem., 3 00
Jeremiah Godfrey, Hampton Falls, second premium,..... 2 00

REUBEN W. CURRIER, for the committee.

CROPS.

The committee on crops report that ten entries were made on corn, two on barley, two on wheat, one on rye, one on oats, and two on carrots, with statements as follows:

CORN—EIGHT.

Joseph Winslow, Epping, on one acre, 111 bushels 28 quarts.
Joseph Cilley, Nottingham, " " 106 "
Jacob T. Brown, Hampt. Falls, on one acre, 95 64-100 bushels.
T. M. Prescott, " " " 95 "
John T. Batchelder, " " " 82 "
Jas. M. Sanborn, East Kingston, " " 93 6-32 "
R. W. Currier, " " " 81 1-2 "
Benjamin D. Laighton, Stratham, " " 76 1-4 "

BARLEY—TWO.

A. C. Taylor, Hampton, one acre and ten rods, 50 1-2 bushels.
R. W. Currier, East Kingston, one acre, 35 bushels.

WHEAT.

Daniel C. Long, Kingston, one acre twenty-four rods, 31½ bush.

RYE.

Stephen Dow, Brentwood, four acres forty-one rods, 175½ bush.

OATS.

James H. Dow, Rye, one and one-half acre, 68 bushels.

CARROTS.

Rufus C. Sanborn, Hampton Falls, one-fourth acre, 151½ bush.

Statements of which are herewith annexed.

Joseph Winslow's Statement.

[This statement, and also Col. Cilley's, are the same as given in the awards of the State Society.]

Jacob T. Brown's Statement.

To the Committee on Crops—Gentlemen:—Previously to last August we had not thought of entering a corn crop for premium; consequently we cannot furnish you with perfectly exact statistics as to the time of planting, quantity of manure applied, &c., but can be sufficiently exact to give a general idea of the mode of cultivation.

The soil is neither sandy or clayey, but a close brown loam, with a close, hard subsoil. The land was "broken up" in the fall of 1851. In the spring of 1852, about fifteen loads, of forty-five bushels each of good ox manure, from the barn cellar, was spread on the furrows, and plowed in, with a horse, to the depth of about three inches. It was then well harrowed, drilled and planted, hoed four times, and gave us a good crop of corn.

In the fall of 1852, about fifteen loads of manure were spread to the acre, on about two-thirds of the piece, and plowed in to the depth of six or seven inches. The same quantity of manure was applied to the remaining third, in the spring of 1853, and

the whole plowed to the depth of seven or eight inches. It was then harrowed, and drilled three and a half feet between the rows, and planted three feet between the hills—five kernels of corn to the hill, with no manure in the hill. The seed was mixed at the time of planting, one-half Brown corn, the other the large eight-rowed yellow corn.

The corn was planted on the 8th or 10th of May, was hoed three times, the last hoeing being done the first days in July, at which time the corn was beginning to spindle. A *moderate* hill was made, and four stalks allowed to stand in each hill. The stalks were mostly cut the 12th and 13th of September.

The harvesting was completed on the 15th of October, and on the 210 64-100 rods was gathered thirty-five baskets of ears of corn, the basket containing six bushels, potato measure. An average basket full was shelled, and gave us three bushels, nineteen and one-half quarts of corn.

The above statement of the crop is true, according to my best knowledge and belief, and may be confirmed by Mr. Levi E. Lane, one of your committee, who has a full knowledge of the facts.

I will further add, that the yellow corn yielded better than the "Brown," by having three or four times the number of double ears to a stalk.

NOTE.—35 baskets, at 3 bushels 19½ quarts each, gives 126 bushels 10½ quarts. The piece measures 210 64-100 rods, which gives 599-1000 bushels to the rod. 599 per rod, gives 95 64-100 bushels to the acre.

JACOB T. BROWN.

T. M. PRESCOTT'S STATEMENT.

To the committee on Crops:—The amount of corn raised by me on one acre of land, the present year, is ninety-five bushels, which crop I entered for the premium.

The corn was planted about three feet between rows, and about the same distance between the hills, with four stalks in

the hill. There were about sixteen loads of barn manure plowed in, and seven put in the hill, on said land. The land is gravelly loam, and was planted with corn the year previous, with about fifteen loads of barn manure on the same.

T. M. PRESCOTT.

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John T. Batchelder's Statement.

I raised eighty-two bushels and nine quarts of corn on one acre of ground. It was old ground, which had been planted three years with corn. It was manured with sixteen loads of good manure, under the furrow, and eight loads in the hill.

JOHN T. BATCHELDER.

Hampton Falls, October, 1853.

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James M. Sanborn's Statement.

To the committee on Corn—Gentlemen:—The acre of ground upon which grew the corn which I have entered for premium was spread with six cords of manure, which was plowed in. About a half shovel full of old manure was put in the hill. It was planted three feet and a half in the row and three feet in the hill.

JAMES M. SANBORN.

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R. W. Currier's Statement.

To the committee on Grain Crops:—I enter one acre of corn for premium. From one measured acre I raised one hundred and forty-one baskets full of ears of corn. I shelled one bushel of ears, which, when shelled, gave one-half bushel and two quarts and one pint, making in all from one acre eighty-one and a half bushels of shelled corn.

Manner of cultivation.—One half of the acre was broken up last November, seven inches deep; the other half was old ground,

planted last year with corn and potatoes. We spread on, last year, and harrowed in, about eight loads of manure, say three parts muck and one part summer and winter manure; and put in the hill about one hundred pounds of Peruvian guano. The season was so dry that I think it did no good to my corn. I think I had better and more potatoes where I used the guano; say one bushel in seven. I put the guano in the hill, unmixed, and covered it over one-half inch, with the same loam I dug out of the hill, and then dropped and covered the corn. I put about one glass in the hill.

Last April I carted on my acre twenty loads of manure, three parts muck and one part summer and winter manure, forty bushels to the load, spread over as even as possible. We plowed it in on the old ground, seven inches deep, and harrowed it in on the new ground five or six times, and harrowed the old ground over twice. I planted my corn the 6th of May, three by three and a half feet, two-thirds eight-rowed, one-third ten and twelve rowed; soaked it in strong soap suds, and covered the corn all over, so that it might soak from twenty to thirty hours before planting. I covered the corn as soon as dropped, and was careful not to let it dry before covering. I put five kernels in the hill. When hoed the second time, I thinned to four stalks to the hill. I put in the hill, when planted, about five cart-loads, forty bushels to the load, of hog manure to the acre, and hoed all of it three and part of it four times. At the second hoeing I put around each hill about one gill of ashes and slaked lime; two-thirds ashes and one-third lime, well mixed together and moistened. Used a cultivator the first and second time hoeing, and made a flat hill. Cut the stalks after the corn turned hard.

Expense of Cultivation.

Plowing one acre,	$4 50
Harrowing,	2 00
Carting manure,	4 00
Spreading,	1 00
Planting and manuring in the hill,	5 00
Hoeing and cultivating,	7 00
Cutting stalks and housing,	3 00

Harvesting,	3 00
Husking,	4 50
Interest on land, at $100 per acre,	6 00
For manure, one-fourth of twenty-five loads,	6 25
	$46 25

Value of Crop.

81½ bushels at one dollar per bushel,	$81 50
Stalks and buts,	12 00
	$93 50
Leaving, as profit from the acre, a balance of	$47 25

NOTE.—*Manner of making the manure.*—As soon as convenient after haying I draw into my barn-yard swamp muck, about twenty-five loads, and spread it evenly over the yard, and let it remain till spring. Then I mix all my winter and summer manure together, and draw it on my planting ground. I think it bad economy to move the manure in the fall.

My manner of making and preparing my hog manure for planting, is this: I draw in my hog-yard five or six loads of muck to a hog, soon after planting. I put all the weeds around the house, and all the waste dirt, and let my sink water and washing suds run into the yard from a gutter prepared for this purpose. In this way I make seven or eight loads to one hog. At planting I mix my hen manure with my hog manure, and sometimes my ashes, when I do not put it around the corn, mix it altogether as evenly as possible, about a half bushel of hen manure to the load, and about three bushels of unleached ashes. Then put on about five loads (forty bushels) to the acre, in the hill.

R. W. CURRIER.

BENJAMIN D. LEIGHTON'S STATEMENT.

To the committee on Crops—Gentlemen:—I submit the following statement of the produce of an acre and thirty-five rods of ground, planted to corn, upon my farm the present season.

The soil is a gravelly loam, a thick grass sod, turned under in the spring of 1852, and planted to corn, with eight cart-loads of barn manure, of fifty bushels each, put in the hills. Last spring after plowing the said ground, twenty-seven cart-loads, as above, the manure hauled from the farm-yard the previous autumn, and covered with grass sods, was spread upon the furrows, and the ground harrowed twice, lengthwise and crosswise. Ten loads of manure from the same heap were put in the hills on a part of the ground. Planted the first week in May; the rows three and a half feet apart, hills three feet; four kernels of the eight-rowed variety in a hill. Hoed three times; a cultivator used prior to the two first hoeings. The last hoeing was in August. Care was taken to destroy all weeds and to keep the surface level. Top stalks cut the last of September. The corn was gathered the second week in October. The produce, after husking, was one hundred and eighty-six bushels of ears, being, according to the usual calculations, allowing two bushels of ears for a bushel of shelled corn, at the rate of seventy-six and a quarter bushels to the acre.

I would observe that the corn which grew upon that portion of the ground not manured in the hills, exceeded in quantity, and in the size of the ears, that grown upon the rest of the piece.

BENJ. D. LEIGHTON.

Stratham, October, 1853.

A. C. Taylor's Statement.

To the committee on Crops:—I raised from three bushels of seed on one acre and ten rods of land, fifty and a half bushels of barley, as measured up from the mill, rounding measure. I plowed and sowed the last of April, on a gravelly loam, dressed with six cords of manure from the barn-yard, part under the furrow and part as a top dressing. The latter was better than where the manure was under the furrow.

A. C. TAYLOR.

Hampton, 1853.

R. W. Currier's Statement.

To the committee on Grain Crops:—I entered one acre of barley for a premium at the County Fair, holden at Exeter in September last. The amount raised on one measured acre was thirty-five bushels.

Manner of cultivation.—I sowed my barley the 18th of April, on old ground, which was planted last year, 1852, with corn and potatoes; three-fourths corn and one-fourth potatoes. Spread on, and put in the hill, about twenty loads of manure, forty bushels per load, three-fourths muck and one fourth cattle and hog manure, with some ashes.

Last spring I plowed once and sowed two and a half bushels to the acre; did not manure it any this year; harrowed once before sowing, once after, and then sowed three pecks of herdsgrass seed and twenty pounds of clover seed, then brushed it over. Sowed my barley dry.

Expense of Cultivation.

Plowing one acre,	$3 00
Two and a half bushels barley,	2 50
Sowing and harrowing,	2 25
Cutting and gathering,	2 25
Threshing and cleaning,	2 00
Interest of land, $75,	4 50
Manure, last year,	5 00
	$21 50

Value of Crop.

35 bushels of barley, at ninety-two cents,	$32 20
Straw,	9 00
	$41 20
Balance for the above,	$19 70

The within statement is, to the best of my knowledge and belief, true. R. W. CURRIER.

East Kingston, November 9, 1853.

Daniel C. Long's Statement.

Daniel C. Long of Kingston states that he raised from two bushels of seed wheat, on one acre and twenty-four rods of land, thirty-one and one-half bushels. Said wheat was of the Black Sea variety, sown on a gravelly loam soil.

DANIEL C. LONG.

Exeter, Nov. 9, 1853.

Stephen Dow's Statement.

I, Stephen Dow, of Brentwood, in the county of Rockingham, sowed four bushels of winter rye, and raised one hundred and seventy-five and one-half bushels, as measured up by myself, John Kelly and Josiah R. West. Said rye was sowed on four acres and forty-one rods of land, as surveyed by Joseph Graves, which I now offer to the Rockingham Fair for a premium, if deserving.

STEPHEN DOW.

Brentwood, Sept. 12, 1853.

James H. Dow's Statement.

The specimen of oats exhibited at the Rockingham Fair, at Exeter, September 16, 1853, raised by James H. Dow of Rye, was from seed sowed the 25th day of April, 1853, on loamy ground, one and a half acres, with a good coat of barn manure plowed under the furrow. I sowed two and a half bushels. The product was sixty-eight bushels. Weight, thirty-two pounds to a bushel.

The first oats that I sowed, I bought of C. W. Drake. I sowed five bushels on the 24th of April, 1851, on three acres loamy ground; product one hundred and twenty bushels; weight thirty-one and a half pounds to a bushel.

May 1st, 1852, sowed six bushels on three acres pasture ground, with no manure. The product was eighty-seven bushels; the weight thirty-six pounds per bushel.

JAMES H. DOW.

Rufus C. Sanborn's Statement.

To the Chairman—Sir:—I send you a statement of my carrot crop the present season. The number of bushels was one hundred and fifty-one and a half, raised on one-fourth of an acre. Four cords of compost manure were applied, one-half swamp mud, one-half barn-yard manure. No manure was applied the last year. The soil is a sandy loam. I sowed the orange carrot on the 28th of May.

Yours respectfully, RUFUS C. SANBORN.

Hampton Falls, Nov. 9, 1853.

The committee report premiums as follows:

Joseph Winslow of Epping, for the best crop of corn,	$5 00
Joseph Cilley of Nottingham, for the next best,	3 00
A. C. Taylor of Hampton, for the best crop of barley,	4 00
Daniel C. Long of Kingston, for the best crop of wheat,	4 00
Stephen Dow of Brentwood, for the best crop of rye,	4 00
James H. Dow of Rye, for the best crop of oats,	4 00
Rufus C. Sanborn of Hampton Falls, for the best crop of carrots,	3 00

JAMES HILL, for the committee.

REPORT ON BOG MEADOWS.

The committee on Bog Meadows have awarded the only premium which they are authorized to bestow, to Greenleaf C. Brown of Stratham, and regret that it is not in their power to award another to Jeremiah Godfrey, for his valuable and successful experiment.

LEVI B. TUCKER, for the committee.

Greenleaf C. Brown's Statement.

To the Chairman of the Committee—Dear Sir:—It is hardly possible for me to give you an adequate idea of my bog meadow in its natural state. In speaking of it in the family or to my

neighbors, I have invariably called it the *Pond*, for literally and in reality it was a *pond*, which in the spring season was a place where we often took a pleasant sail upon its waters, which were from two to four feet deep; and the wild ducks would stop to rest their weary wings when on their annual visit to the eastward. In winter it was a place of resort, where the young lads met to enjoy themselves with their skates upon the hard and transparent ice. It has always been considered valueless, so much so that I have often wished that the high ground on each side would collapse, or come together, and shut the nuisance of a pond out of sight and hearing, for we were compelled to hear the continual croaking of frogs for more than two months in the year. We were annoyed still further by the thousands of mosquitoes which bred in its stagnant waters.

Its natural productions were water-bushes and a coarse kind of hassock grass, which came up in the latter part of the season, as the water dried away, which often left a very offensive, unhealthy smell. The blackbirds considered the bushy part a safe retreat for them to build their nests and rear their young in, and but seldom were they disturbed; and the sagacious muskrats built their houses from two to four feet high, and spent the whole year, without being compelled to leave for want of water. As to other animals, the tortoise and black snake were very numerous, in varieties, and numbers exceeding every thing I ever saw of the kind. Of the latter I have killed many as large as a common scythe snath.

My first object was to drain the water off, which was done by cutting a deep ditch through the centre, and making the outlet lower, which gave me an opportunity to commence cutting the water-bushes, (which were from three to eight feet high;) cutting them five or six inches from the surface, did but little towards subduing them, until I cut them close to the ground when it was frozen, and burnt it over the next season. The fire prevented their sprouting in a great measure, and by continued cutting and burning, the roots and moss, (of which there was a complete mat,) were in a great measure destroyed.

The next move was to try the plow, which was truly the most

discouraging. In attempting to open the first furrow on the part where the largest bushes had grown, we had five hands and four yoke of cattle, but were not able to make a black mark in the mud all the way, on account of old logs and water-bush roots, but by application and perseverence we broke or tore up the most of it, about three acres in all. In some parts, where the bushes did not grow, it was so miry that it was impossible to keep the team in the furrow.

Lest you should get an incorrect idea of the time and manner, I would state that I first sowed a part of it June 18, 1846, and mowed it the September following, and I think there was a ton to an acre. The next season mowed it the last of June or the first of July, and estimated the crop at two tons of market hay to the acre. Mowed the second crop in September, which was as good as the previous year, thus making three crops within twelve months.

I have commenced turning over the second time that which was sowed June 18, 1846, and have turned up about one acre and a half, including also a portion that I have sowed this year for the first time, which completes the whole meadow, and now for the first time I have the pleasure of seeing it all sown down to grass. The ground was so soft and miry that I used the spade in preference to the plow, considering it more economical.

I sowed it with grass seed in July and August last, and now the last sown looks more like grain than grass, and promises well for the next season, using about one hundred and twenty-five bushels of leached ashes to the acre. I consider the soil clear peat, from two to ten feet deep, of little or no value until it is worked.

In subduing the hassock, I did not burn, as is sometimes done, but after tearing them up with the team before plowing, loaded them upon a drag and drew them to the lowest places, where a hole was dug large enough to receive them, filling it up with them within a foot of the surface, then throwing back the mud sufficient to cover them, and the remainder of the mud dug from the hole spread around, would raise the ground to a level, which answered a very valuable purpose, in two ways—that of raising

the low places, and secondly, in easily disposing of the useless hassocks.

The soil appears to me to be purely vegetable, possessing a natural acid, which requires some kind of manure to neutralize and correct it.

I have used common barn-yard manure, also lime, dry and leached ashes, and have tried it without any manure. I give the preference to ashes, for one important reason, that it does not carry on any foul seed with it, and requires less labor in carting than barn manure. I have used a wheel-barrow when I spread the ashes, as cattle would spoil the surface with their deep tracks. After levelling the ground as nicely as possible with a hoe, I sow the grass seed, spread on the manure or ashes, and with a light brush harrow, drawn by hand, put on the finish, except in one instance I used a light hand roller, which I consider as beneficial, as it presses down the surface, and renders it less liable to suffer from drought.

Now, sir, instead of wishing the meadow banished out of creation, I regret that I did not commence upon it years sooner than I did, as it is within ten rods of my dwelling house, and adds very much to the pleasantness of the scenery around.

I planted a part of it one year with potatoes, and the proceeds of that year's hay and potatoes amounted to nearly one hundred dollars, realizing a handsome profit, notwithstanding some of my friends in the outset said I could never raise grass upon such a sunken hole. Thus we see that this worthless spot has become, by cultivation, a pleasant part of my farm, yielding turnips, potatoes and grass, which was once the abode of the tortoise, frogs, muskrats, lizards, black snakes, and almost every foul reptile.

Yours respectfully,

GREENLEAF C. BROWN.

Stratham, Oct. 18, 1853.

Jeremiah Godfrey's Statement.

To the committee on Bog Meadows:—The meadow which I submit to your examination contains one acre and five-eighths. About two-thirds of it was originally a meadow bearing a medium crop of hassock and water grass; it was half covered with hassocks, and was so soft that in many places a rake handle has been easily run down its whole length. All the hay growing upon it had to be poled out to the upper side, where the ground was a little harder, in order to reach it with a team; the remainder was in pasture, bearing blue flags, some blue grass, and some other wild grasses, distinguished by no peculiarity except in being remarkably tough rooted.

The cause of the land being so soft, was the water from springs above, for which there was no escape except by evaporation.

In the fall of 1848, a ditch was cut on the lower side of the meadow, and for some distance below. The ditch was two feet wide, and would average about two feet in depth. In August of the next year the mud was hauled off, and ten heaping ox-cart loads of hassocks were cut, hauled off and burnt. About two-fifths of the meadow was plowed and sowed in the following September, which produced a fair crop the next season. After the land was plowed the mud was thrown out of the ditches on to the beds, after which it was levelled with hoes, then covered with gravel, at the rate of forty loads to the acre.

Some of the land being too soft to haul the gravel on with the oxen, it was put on by means of a wheel-barrow. It was sown with herdsgrass and red-top, and the seed harrowed in by hand, with a brush harrow. In the fall of the next year another strip was plowed immediately before a heavy rain, which rendered it so soft that it was impossible to work it at all, and we were obliged to let it lie over till the next August, 1851, when it was sown. At the same time, another bed was plowed and finished. In the spring of 1852, the last bed was plowed, and the next August finished. Owing to a severe drought, the seed did not vegetate so quickly nor so well, and the result was a lighter crop than usual for the first time after sowing it. It

however bids as fair for a crop next year as any of the preceding.

All the above beds were plowed about twenty-two feet wide, and were gravelled at the same rate, and finished in the same manner as the two first described. The plow used was one of Ruggles, Nourse & Mason's, furnished with a steel point and a drag cutter, made very sharp, and was of large size.

As to the cost of subduing the meadow, it is impossible for me to state it exactly, as no account was kept of the time spent upon it. I would state, however, that all the labor was performed by myself and son, with the exception of a man in plowing, which occupied two days and a half; and a man to shovel gravel one day.

The soil of the meadow is a mud, varying in depth, (now that it is drained,) from two feet to six inches. The value of the land in its unreclaimed state was nominal, as it produced on an average about one ton of hay annually, of poor quality, and what little was in pasture was of even less value than what was mowed, in proportion to its quantity.

As to the crop of hay grown on it, as it will be shown, you must form your own conclusions. The crop was differently estimated by different individuals; but as there are no hay-scales within a reasonable distance, it was never weighed; the only fact which I am able to state is as follows: on four-fifths of the land, or one acre and forty-eight rods, the hay, which was all cut at the same time, was put into one hundred and three cocks; after the hay was thoroughly dried, two of these, which had previously been selected by another person, at my request were weighed, and averaged seventy-eight pounds, which would give eighty hundred and thirty-four pounds. As he was particular to select those of as small size as any on the piece, I have no doubt that the weight exceeded even this.

The hay produced was herdsgrass, with a slight mixture of red-top. At least one ton of second crop to the acre could have been cut by the 10th of September, but it was fed off in the following manner: about the 10th of August four calves were turned in, and the 1st of September three more, and were not taken out until the 10th of October.

Nothing was ever hauled on to the meadow but gravel, but the furrows or ditches between the beds have been cleaned out, and the scraping thrown over the land once or twice since it was first plowed.

The crop last year was better than it was the year before, and I know of no reason why, with proper care, it should not continue to produce in the same manner.

All which is respectfully submitted.

JEREMIAH GODFREY.

Hampton Falls.

FANCY ARTICLES.

The committee on "Articles not before specified, including family and ornamental needle work, painting, drawing, flowers and the like," submit their report.

At the outset of the labors of the committee, they perceived that their duties embraced a much wider field of examination than that of any other committee, and that the articles which properly came within the sphere of their duties occupied a large portion of the hall of exhibition, and constituted some of the chief attractions of the fair. They regret that their duties had not been sub-divided, and assigned to several separate and distinct committees, and recommend by all means that this be done at future exhibitions.

The committee have at their disposal the sum of twenty-five dollars, to be distributed in the shape of premiums. This sum is entirely inadequate to enable the committee to do justice to their own feelings, or to the ingenuity, skill and taste of those who have contributed so bountifully to the gratification and delight of the assembled multitude. Had a hundred dollars been at the disposal of the committee, it would have been appropriately expended in testifying the high appreciation which the spectators generally manifested in the specimens of beauty and art examined by the committee. As it is, we divide what we have in the best manner we can, and recommend a moderate sum in

addition, for the favorable consideration of the officers of the Society, if they find the funds sufficient.

The specimens of ornamental needle-work were of the most admirable character. It is with difficulty that the committee can make a selection of some, as more excellent than others, and entirely out of their power to award premiums to all whom they were pleased to notice in that way. They have made a selection, however, and appropriated the sum at their disposal. Besides the persons to whom premiums were awarded, the committee were highly gratified with specimens of worsted embroidery presented by the following individuals: Mrs. N. Gilman, Mrs. Hurd, Mrs. C. D. Towle, Mrs. Wm. A. Goodwin, Misses E. F. Smith, E. A. Lovering, M. E. Thayer, C. A. Gardner, Frances Robinson, Lizzie J. Gardner, Mrs. E. F. Tucke. Also, Mrs. O. Head, an embroidered blanket; Miss D. Gilman, wrought counterpane. Fine specimens of bed-quilts were exhibited by others, and of needle work by very young girls.

The committee were particularly interested in the specimens of papier mache, inlaid with pearl, by E. C. Brown, of Hampton Falls, as showing a new branch of employment of an agreeable and beautiful character.

The pictures by C. F. Gerry, teacher of drawing, at Exeter, and by the pupils taught by him, were of such a character as to establish his reputation as an artist and teacher of very high merit. It requires the skill of a professional artist to criticise his works in a proper manner; and we only regret for his own sake that such was not the case. His picture of the inundation is most striking and beautiful. Among the works of his pupils, fine specimens were exhibited by Misses E. Gordon, J. M. Currier, L. Boardman, H. Purdy, N. Gilman, Misses Moses, E. R. Wells, Mr. J. F. Whidden.

Mr. Diman, of Stratham, presented the most extensive variety of flowers, and his portion of the exhibition room awakened much admiration.

Mr. William H. Hills, from his nursery and garden at Plaistow, presented a choice variety of dahlias, tastefully arranged.

Mr. Isaiah D. Stott, of New Market, had a beautiful dahlia

bouquet, in the form of a warrior's plume, that has seldom been equalled at any floral exhibition, and which would have well graced the head of an Indian chieftain sweeping over the flowery beauties of the western prairies.

Besides these, fine dahlias and other flowers were exhibited by Mr. Marden of Portsmouth, and others. Mr. Jacobs of Exeter had some fine and valuable specimens of plants.

The committee would not pass by, without special notice, the two suits of men's clothes presented; the one by Mr. G. W. Winnek, and the other by Mr. R. C. Thompson, both of Exeter. We thought it unnecessary to attempt to discriminate between the skill or workmanship displayed by each, and accordingly gave each a premium.

Mr. Gilman Rand's books exhibited excellent skill in binding.

The specimens of paper, manufactured from straw and manilla hemp, by the Messrs. Russell, were very nice and superior.

Flowers painted in water colors, from nature, by Miss Sarah H. Foster, of Portsmouth, deserved and received marked attention from the spectators, and exhibited much skill and labor.

A wonderful specimen of drawing with a pen, or of ornamental penmanship, by a German resident of Portsmouth, (his name modestly withheld,) exhibited the nicest skill of execution, superior to any which the committee have ever before examined. It was all the more remarkable from the fact that it was drawn by an invalid, in a sick chamber.

Miss Sophia Furber, of Newington, also exhibited an interesting specimen of ornamental penmanship, deserving particular notice.

To do justice to the exhibitors, the committee feel that the productions of others should be noticed, but they can do no more than to close with the names of those among whom the money at our disposal had been divided, and those to whom we recommend further appropriation. We award to—

Mrs. John Smith, Brentwood, for a rug, ...	$1 00
Mrs. Samuel Runnels, Kensington, for a shell cottage, ...	1 00
Miss S. Maria Odiorne, Exeter, for a silk counterpane, ..	1 00
Mrs. Sarah Perkins, Hampton Falls, for cotton hose, (recommended,)	50

Mrs. F. F. Forsaith, Hampton, for worsted chair seat, (recommended,) 1 00
Miss Elizabeth G. Brown, Hampton Falls, papier mache inlaid with pearl, ... 2 00
Mrs. George O. Dearborn, Exeter, for table cover, ... 50
Mr. C. F. Gerry, Exeter, for pictures, (recommended,) .. 5 00
Miss H. Purdy, (being a very young pupil of Mr. Gerry,) for do., ... 1 00
Miss Lizzie Plumer, Epping, for leather picture frame, ... 1 00
Mrs. H. Wiswall, Exeter, embossed worsted, ... 1 00
Mrs. W. H. Wadleigh, Kensington, two rugs, ... 1 00
Mrs. Lyford Thing, Exeter, worsted rug, ... 1 00
Miss Geo. Ann Lowe, Exeter, embroidered ottoman, ... 1 00
Mrs. E. F. Tucke, Exeter, worsted work rug, ... 1 00
Miss Sophia Furber, ornamental penmanship, ... 1 00
Mr. J. H. Diman, Stratham, for flowers, ... 5 00
Mr. William H. Hills, Plaistow, for dahlias, ... 2 00
Miss Ellen R. Wells, Exeter, vase of wax flowers, ... 1 00
Miss Ellen Blake, Raymond, embroidery, ... 50
Miss Sarah A. Gale, Exeter, needle book, ... 50
Mr. William G. Winnek, Exeter, suit of clothes, (recommended,) 3 00
Mr. Robert C. Thompson, Exeter, suit of clothes, (recommended,) 3 00
Miss Harriet Robinson, Exeter, screen, ... 2 00
Miss Nancy Gilman, worsted, ... 1 00
Miss A. O. Odlin, Exeter, cheneil stand, ... 50
Miss Lucy Boardman, Exeter, (recommended,) 1 00
A German, of Portsmouth, ornamental penmanship, (recommended,) 3 00
Miss Sarah H. Foster, Portsmouth, water colored paintings of flowers from nature, ... 1 00
Mrs. J. F. Tuxbury, Exeter, embroidery, (recommended,) 2 00
Mr. J. F. Whidden, Exeter, a pupil of Mr. Gerry, (recommended,) 2 00
Mrs. S. W. Leavitt, Exeter, rug, (recommended,) 1 00

AMOS TUCK, for the committee.

FARMS.

From some feeling of modesty, doubtless very commendable in most cases, no entry for any premium on a farm was made

within the time originally fixed, but the time being extended, four entries were afterwards made. The committee first examined the farm of Abner Littlefield, of Greenland, and found there a good farm and a good farmer. Every thing denoted the presence of an active, energetic occupant, and the farm is one of the most valuable in the county. The committee were particularly struck with the beautiful and thrifty trees, in the extensive peach and apple orchards. Mr. Littlefield makes great use of the weed from the "Great Bay," on which his farm lies, called eel-grass, in composting, and for mulching about his trees. He has recently built some fine stone walls, and devoted much labor to making new fields, from rough pastures. Mr. Littlefield has occupied his farm so short a time as not yet to reap the reward of his improvements. From the fact that he did not furnish to the committee answers to the questions proposed in writing to him, it was understood that his application for a premium was withdrawn. He probably inferred from remarks of the committee, that his occupation of the farm had been too short to entitle him fairly to any claim.

We also visited the farm of Moses Sanborn, of Kingston. Mr. Sanborn has practiced on the annexation principle, until he has acquired a large territory, from which he derives a large amount of hay, and other produce. Upon his farm, as shown, are some eight or ten dwelling-houses, occupied by tenants. We were shown by him a very successful experiment in reclaiming a swamp, which our farmers will do well to repeat in other waste places.

However valuable or well cultivated Mr. Sanborn's farm may be, the committee are inclined to the opinion that a plantation made up of several farms, thus occupied, does not come within the reasonable idea of a *farm*, for the Society's premiums.

We visited also the farm of John Nudd, of Kensington. We will add, that we believe no farm can be shown in New Hampshire, where more perfect order and neatness prevail than here. Every tool was in its place, and in perfect order, every floor swept like a parlor; the cellar, granary and corn barn neat enough for dining-rooms, and the work-shop well furnished with

carpenters' tools, bright and sharp. Mr. Nudd's farm is a hill farm, and his mode of farming not very modern. Perhaps some recent improvements might be introduced to advantage, but we should be unwilling to attempt to teach Mr. Nudd any thing in regard to raising and tending a herd of cattle, or swine. Mr. Nudd has no improved breed of cattle, except as he has made it himself, from native stock, but his working oxen are hard to beat. We were particularly pleased with the skill and care with which the fields on this farm were laid to grass. The use of the roller, which every farmer should use, can alone put such a finish to the work as suits Mr. Nudd's ideas of neatness.

We have awarded to Mr. Nudd the second premium on farms.

The committee visited the farm of George T. Ball, of Greenland, and examined it in his absence. We found in every part of it indications of good judgment and skill, aided by perseverance and capital. Capt. Ball has in a few years thoroughly renovated an old and exhausted farm, and brought it into a state of high cultivation.

We have awarded to him the Society's first premium.

H. F. FRENCH, for the committee.

HILLSBOROUGH.

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BROOKS SHATTUCK, Bedford.

Vice Presidents.

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HIRAM MUNROE, Hillsborough;
JONA. RUSSELL, Mason;
C. E. POTTER, Manchester.

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N. H. SHATTUCK, Brookline;
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JOHN PLUMER, Goffstown;
NAHUM RUSSELL, JR., Greenfield;
BENJAMIN GOODHUE, Hancock;
BENJAMIN PRIEST, Hillsborough;
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ELI HAMBLET, Hudson;
J. ABBOTT MARSH, Litchfield;
CHAS. H. HOLT, Lyndeborough;
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Moody Hobbs, Pelham.

Corresponding Secretary.

Hiram A. Daniels, Milford.

Treasurer.

David Steele, Amherst.

THE FAIR.

The Show and Fair took place at Milford, on Wednesday and Thursday, the 28th and 29th of September. On Wednesday the rain poured in torrents, of course preventing the exhibition of any sort of curiosities in the tents, and the appearance of men, animals, implements or merchandise upon the grounds. On Wednesday evening the prospects for an entire failure in the Show and Fair rose as the skies lowered; but Thursday morning brought a fair day, and with it came the people, determined to enjoy, if only in part, the entertainment of these holidays of the farmer.

The first grand entry was made by the farmers of Brookline. A team of thirty-five yoke of oxen wended its slow length along, composed of plump, sleek and fine colored animals, their stately tread accompanied with strains of a band of music, which, with some seventy-five or one hundred men, women and children, occupied the seats of a half dozen farm wagons, fastened together and forming one immense vehicle, garnished with evergreens, mottoes and flags, and forming such a combination and representation of health, happiness and prosperity as is seldom seen out of "Old Hillsborough."

Then the thrift of Hollis was represented in this particular by a team of fourteen yoke of oxen, taken from school districts Nos. four and ten. These were noble animals, and though but a partial representation from the town, yet was a true one, as few towns in the county or State, if any, can excel Hollis in the number and excellence of its working oxen.

The next matters of interest were the plowing and pulling matches. These matches were contested with spirit. Mr. Ames of Hollis, with Doe's plow, took the first premium for plowing,

and deservedly, we think, as better judges than ourselves pronounced the work most neatly and expeditiously done.

The cattle pens were well filled, much better than we anticipated, or than at any previous exhibition of the Society.

There were ten fine bulls upon the ground; among them a Durham of Messrs. A. & E. Jaquith of Amherst, two years old, and weighing 1509 pounds, was worthy of special notice. Also, the Devon of C. H. Campbell of Amherst, "Kossuth," a beautiful animal, and near him the bull calf "Rob Roy," of his get, six months old, and weighing 603 pounds, a splendid animal, with its dam in the same pen, also, a noble specimen of the Durham cow.

There were eight brood mares, with colts by their feet, on exhibition, all good specimens, and some of them of most superior marks.

George Steele of Peterborough had fine specimens on exhibition, and a span of "three year olds," belonging to Mills & Wilson of Milford, attracted much notice as being well matched and of excellent points.

Upon entering the tent we found the same well filled, considering the weather previous to and on the first day of the Fair.

On the right were ten plows of the Milford Plow Company, all of good style and workmanship. Upon the left were seven plows by Pearson & Bell of Milford, of neat finish, and without doubt capable of turning a neat furrow. Near them Putnam & Chase, of the same place, had winnowing mills, ox yokes, straw cutters, &c., all looking like "No. 1's."

Of furniture there were fine specimens on exhibition by Putnam of Milford, Burns of the same place, and Tupper of Nashua. The spring bedsteads of the last named gentlemen were excellent articles to appearance, and we have no doubt if we could afford the luxury of sleeping upon one that we should find them an assistant to

"Tired nature's sweet restorer, balmy sleep."

Of vegetables there were most excellent specimens. Capt. Ramsdell of Milford had on show fourteen varieties of pears and

twenty-three varieties of apples; all fine fruit in their season.

Deacon Brooks Shattuck, of Bedford, the President of the Society, exhibited specimens of Isabella grapes, potatoes of various kinds, squashes, carrots, beets, onions, and cabbages—all fine specimens. His grapes, onions and cabbages are the finest we have seen. He has an acre of cabbages, of the best size and growth we have ever seen, showing the advantage of *super phosphate* in the cultivation of this and other vegetables.

Rev. A. G. Comings of Mason exhibited varieties of potatoes, apples, squashes, cabbages, beets, beans, &c.; all looking finely, and showing good skill in their cultivation.

C. H. Holt of Lyndeborough had a fine show of grapes and the wines of grapes, pure, clear, and we presume of excellent flavor, butter, cheese, apples, pears, peaches and plums; all excellent in their way. Holt must be a fine farmer, and his wife knows how to make butter and cheese.

Brown of Manchester was "on hand" with a large assortment of daguerreotypes, taken in the best style of the art. E. G. Currier of Mont Vernon exhibited two beautiful paintings in oil.

Then the ladies' department was well represented; quilts, coverlets, rugs, mats, lamp mats, table covers, cricket covers, and other knick knackery, were there in profusion; and as the dealers say, "too numerous to particularize." A table cover, lamp mat, and vase of flowers, by Mrs. D. S. Burnham of Milford, were fine specimens of needle work, worthy of notice among all good specimens. There were other fine specimens, but we must pass to the dining tent, where were the substantials, well spread for the inner man, which having been well discussed, were amply digested during the delivery of speeches by guests and others called out by the President. Among them, Brown of the New England Farmer, made a taking speech, as usual. From the tent the procession passed to the church to listen to the address, by J. W. Proctor, Esq., of Danvers. It was a practical production, embodying common sense upon topics of interest to every farmer. Mr. Proctor knows what he is talking about, when upon any subject connected with the farm.

In consequence of the rain the first day, all of the exercises were crowded into Thursday, which made some confusion, and threw the delivery of the address into the after part of the day, when for want of light the speaker was obliged to omit topics of interest, a circumstance much to be regretted; but notwithstanding, the Fair went off with much spirit, and with great credit to all concerned, evincing what we have ever known, that the people of "Old Hillsborough" can do "the clean thing" under any circumstances.

PREMIUMS AWARDED.

FARMS, ORCHARDS, &c.

Ebenezer Fox, Hollis, best cultivated farm,	$10 00
Wm. P. Sanderson, Hollis, second best,	7 00
Samuel Burton, Wilton, third best,	5 00
Wm. Merrill, Hollis, fourth best,	3 00
Darius Stickney, Pelham, fifth best,	Diploma.
John Dodge, Bennington, best reclaimed bog meadow,	5 00
Asa Butler, Jr., Pelham, second best,	3 00
Thomas Gowing, Hudson, best grafted apple orchard,	5 00
Pliny Whitney, Milford, second best,	3 00
Wm. Ramsdell, Milford, third best,	2 00
C. H. Holt, Lyndeborough, best nursery fruit trees,	4 00
Samuel Little, Hollis, second best,	3 00

VEGETABLES, &c.

Brooks Shattuck, Bedford, best display of vegetables,	2 00
A. G. Comings, Mason, second best,	1 00
" " " best show of early potatoes,	1 00
Brooks Shattuck, Bedford, best drumhead cabbages,	25
David Clement, Hudson, best carrots,	25
Eli Hamblett, Hudson, best blood beets,	25
Samuel Lovejoy, Milford, best crookneck squashes,	25
David Hobart, Brookline, best custard squashes,	25

John Hartshorn, Milford, best quart early bush beans,.... 25
E. C. Hamblett, Hudson, best quart horticultural beans,.. 25
Ebenezer Fisk, Lyndeborough, best peck of onions, ... 50
Brooks Shattuck, Bedford, best show of onions on the string, 50
Joel H. Gutterson, Milford, best peck potatoes,..... 50

FRUIT.

C. H. Holt, Lyndeborough, best show of fruit, all kinds,.. 4 00
Daniel Burns, Jr., Milford, second best,..... 3 00
William Ramsdell, Milford, third best,..... 2 00
David Clement, Hudson, fourth best,.....Diploma.
A. H. Wood, Hollis, best winter apples,..... 2 00
Daniel Burns, Jr., Milford, second best, ... 1 00
Chas. Melendy, Amherst, third best,.....Diploma.
Daniel Burns, Jr., best summer and fall apples, ... 2 00
Wm. Ramsdell, Milford, second best,..... 1 00
C. H. Holt, Lyndeborough, third best, ...Diploma.
" " " best seedling apples, ... 50
John Perham, Lyndeborough, second best,.....Diploma.
Wm. Ramsdell, Milford, best show of pears,..... 3 00
C. H. Holt, Lyndeborough, second best, ... 2 00
Stillman Hutchinson, Milford, third best,..... 1 00
David Clement, Hudson, best show of peaches,..... 2 00
C. H. Holt, Lyndeborough, second best, ... 1 00
John Perham, Lyndeborough, third best,.....Diploma.
David Burns, Jr., Milford, best show of plums,..... 1 00
G. W. Burns, Milford, second best,..... 50
C. H. Holt, Lyndeborough, third best, ...Diploma.
Pliny Whitney, Milford, best Isabella and sweet water grapes,..... 75
F. P. Fitch, Amherst, second best, ... 50
R. N. Wallingford, Milford, best native grapes,..... 50
" " " second best, ...Diploma.
Stillman Hutchinson, Milford, best water melons, ... 50
Daniel W. Clement, Hudson, second best,..... 25
David Hutchinson, Milford, third best, ...Diploma.
John W. Bruce, Amherst, best musk melon, ... 50
Joshua Cleaves, Mont Vernon, best show of quinces, ... 50
Charles Melendy, Amherst, second best,.....Diploma.
N. Stone, Milford, best show tomatoes, ... 75
John Perham, Lyndeborough, best specimen grape wine, . 75
C. H. Holt, Lyndeborough, second best,..... 50

A. H. Wood, Hollis, best jar preserves,..... 50
J. E. Foster, Milford, best 12 Baldwin apples,..... 50
N. H. Shattuck, Brookline, best 12 Porter apples,..... 50
Stillman Hutchinson, Milford, best 12 Hubbardston nonsuch apples,..... 50
A. H. Wood, Hollis, best 12 ladies' sweeting,..... 50

WORKING OXEN AND STEERS.

J. J. Badger, Milford, best pair working oxen, ... 5 00
Joseph Barrett, Wilton, second best, ... 3 00
George Steele, Peterborough, third best,..... 2 00
Horace Parkhurst, Wilton, fourth best,.....Diploma.
John Richardson, Lyndeborough, best pair 4 years old steers, ... 4 00
Andrew Rockwood, Brookline, second best,..... 3 00
N. H. Ames, Hollis, third best,.....Diploma.
C. H. Campbell, Amherst, best pair 3 years old steers, .. 3 00
Andrew Rockwood, Brookline, second best,..... 2 00
N. B. Gutterson, Milford, third best,.....Diploma.
J. J. Badger, Milford, best pair 2 years old steers,..... 2 00
Isaac Burns, Milford, second best,.....Diploma.

BULLS.

John L. Poole, Hollis, native, second premium,..... 3 00
S. Sheldon, Wilton, native, third premium,.....Diploma.
A. B. Wilson, Francestown, devons, first premium,..... 5 00
C. H. Campbell, Amherst, devons, second premium,..... 3 00
George Steele, Peterborough, devons, third premium,.... 2 00
John Richardson, Lyndeborough, devons under 2 and over 1 year, second premium, ... 2 00
P. M. Rossiter, Milford, devons, third premium,.....Diploma.
A. & E. Jaquith, Amherst, Durhams, 1 year, third premium,..... 5 00
C. H. Campbell, Amherst, bull calves, 1 year, third premium,..... 2 00
J. W. Wheeler, Hollis, bull calves, 2 years, third premium, ...Diploma.

COWS AND HEIFERS.

Pliny Whitney, Milford, best cow, ... $5 00
P. M. Rossiter, Milford, second best, ... 3 00
C. H. Campbell, Amherst, third best, ... 2 00
P. M. Rossiter, Milford, fourth best, ... Diploma.
Francis Wright, Amherst, best heifer, ... 3 00
J. W. Wheeler, Hollis, second best, ... 2 00
John Frye, Wilton, third best, ... Diploma.
S. Brooks, Milford, best heifer calf, ... 2 00
Francis Wright, Amherst, second best, ... Diploma.

A Diploma was awarded to the town of Brookline for the best town team.

HORSES AND COLTS.

S. H. Edgerly, Manchester, best stallion, ... 8 00
Joseph Langdell, Wilton, second best, ... 5 00
John L. Poole, Hollis, best stallion, 3 years old, ... 3 00
D. J. Buckminster, Amherst, second best, ... Diploma.
Jefferson Badger, Milford, best gelding horse, ... 4 00
William Vaughan, Amherst, second best, ... 3 00
H. R. French, Bedford, best breeding mare, ... 5 00
S. H. Edgerly, Manchester, second best, ... 3 00
Albert Riddle, Bedford, third best, ... 2 00
Charles Melendy, Amherst, fourth best, ... Diploma.
Robert Boutelle, Amherst, best working mare, ... 4 00
George Steele, Peterborough, second best, ... 3 00
Rev. E. N. Hidden, Milford, third best, ... 2 00
Mills & Lewis, Milford, best 3 years old colt, ... 3 00
M. S. Wilson, New Ipswich, second best, ... 2 00
Brooks Shattuck, Bedford, third best, ... Diploma.

VARIETY OF STOCK.

C. H. Campbell, Amherst, 1st premium, ... 5 00
George Steele, Peterborough, 2d premium, ... 3 00
P. M. Rossiter, Milford, 3d premium, ... 2 00

SHEEP.

A gratuity of $1, for a fat wether, was recommended to P. M. Rossiter, Milford.

SWINE.

Benjamin Hall, Bedford, best boar, ... 3 00

POULTRY.

Charles P. Wood, Hollis, best lot poultry, ... 3 00
Francis Andrews, Milford, second best, ... 2 00
Wm. A. Colburne, Hollis, third best, ... 1 00
Leonard Willoughby, Hollis, fourth best, ... 50
Francis Andrews, Milford, fifth best, ...Diploma.

PLOWING.

N. M. Ames, Hollis, first premium, ... 6 00
David Butterfield, Francestown, second premium, ... 5 00
Sylvester Proctor, Milford, third premium, ... 4 00
Wm. H. Patterson, Merrimack, fourth premium, ... 3 00
J. W. Wheeler, Hollis, fifth premium, ... 2 00
Jefferson Dodge, Milford, sixth premium, ... 1 00
J. W. Wheeler, Hollis, seventh premium, ...Diploma.

DAIRY.

James Pearsons, Lyndeborough, best butter, ... 3 00
C. H. Holt, Lyndeborough, second best, ... 5 00
Jotham Hartshorne, Amherst, third best, ...Diploma.
C. H. Holt, Lyndeborough, best cheese, ... 3 00

BREAD.

Miss Caroline N. Poor, Milford, best loaf wheat bread, ... 2 00
Miss Sarah L. Joslyn, Milford, second best, ... 1 00
Mrs. Dexter Hutchinson, Milford, third best, ...Diploma.
L. G. Hutchinson, Milford, best loaf brown bread, ... 2 00
Miss Harriet N. Secomb, (13 years of age,) Milford, second best, ... 1 00

Mrs. Sylvester Proctor, Milford, third best, ...Diploma.

CABINET WORK.

Freeman Tupper, Nashua, spring bedsteads,.....Diploma.

FARMING IMPLEMENTS.

Milford Plow Company, best sod plow,.....	2 00
" " " best subsoil plow,.....	2 00
Charles Choate, Nashua, best fanning mill,.....	2 00
David C. Rich, Milford, best ox-yoke, ...	2 00

BOOTS, SHOES, &c.

Mills & Lewis, Milford, best calf boots,.....	2 00
" " " best thick boots, ...	2 00
Lane & Dickey, Milford, best Calcutta boots, ...	2 00
E. Brown & Co., Milford, ladies' and children's shoes,.	Diploma.
J. Gove, Milford, best upper leather,.....	3 00
Jacob Gove, Milford, best calf skins,.....	2 00
C. G. Stebbins, East Wilton, best harness, ...	2 00

DOMESTIC MANUFACTURES.

Mrs. David Holt, Lyndeborough, best ten yards woollen frocking;	50
Elizabeth Morse, Milford, best ten yards woollen flannel,..	50
Mrs. N. B. Gutterson, Milford, best rug carpeting,.....	50
Mrs. David Holt, Lyndeborough, best yarn rug,.....	25
Lucy A. Baldwin, Hollis, (12 years old,) best braided rug,	25
Miss Elizabeth S. Kimball, Peterborough, best rag rug,..	25
Nancy A. Melendy, Amherst, best woollen hose,.....	25
Sarah E. Fisk, Lyndeborough, best ladies' cotton hose,...	25
Miss Rebecca Eames, Lyndeborough, best gent's woollen mittens, ...	25

A. P. Gilson, Manchester, best pair gent's shirts,..... 25
Miss Rebecca Eames, Amherst, (72 years old,) best specimen patching and darning,..... 25
Mrs. Mary Parsons, Milford, (85 years old,) second best specimen patching and darning,.....Diploma.

CARTS, CARRIAGES, &c.

George Kenney, Milford, best chaise,..... 3 00
" " " best buggy chaise,..... 3 00
Wm. Patterson, Merrimack, best ox-cart,..... 2 00
George Kenney, Milford, second best,.....Diploma.
Wm. Patterson, Merrimack, ox wagon,.....Diploma.
George Kenney, Milford, best one horse pleasure wagon,.. 2 00
" " " best sulky,.....Diploma.

COTTON GOODS.

Souhegan Manufacturing Company, Milford, superior tickings,.....Diploma.

INCIDENTALS.

Pearsons & Tarbell, Milford, improved Michigan plow,... 2 00
James Pearsons, Lyndeborough, apple drier,.....Diploma.
Timothy G. Temple, Milford, specimens fine turning, ..Diploma.
N. P. Greene & Co., Nashua, blank books,..... 2 00
F. A. Brown, Manchester, daguerreotypes, with crayon improvement,.....Diploma.
Dr. P. Brooks, Milford, fine specimens dentistry, ... 3 00
J. & A. J. Rockwood, Nashua, patent burial cases,....Diploma.
Freeman Tupper, Nashville, portable spiral spring bedstead,..... 3 00
George Kenney, Milford, improvement in carriage couplings,..... 2 00
Hartshorn & Tuttle, Amherst, best stoves,.....Diploma.
Mrs. M. W. Few, Amherst, one bonnet and two caps, .Diploma.
Miss Charlotte Dodge, Nashua, fancy vest,.....Diploma.

Mrs. D. S. Burnham, wrought table cover, lamp mat, worsted work and neck tie, ... Diploma.
Mrs. Jane Whittemore, Nashua, wrought skirt, ... Diploma.
Misses A. and R. Miller, Temple, three boquets and wreath, ... Diploma.
Mrs. A. H. Wood, Hollis, worsted work, ... Diploma.
Miss Frances McNeil, Hillsborough, fancy box, ... Diploma.
Miss E. S. Kimball, Peterborough, fancy box, ... Diploma.
Miss M. W. Chapin, Nashua, worsted work, ... Diploma.
Mrs. A. P. King, Milford, wrought silk scarf, ... Diploma.

REPORT ON FARMS AND FARM CROPS.

FARMS.

The following method of getting the statements was adopted by the chairman, as he thought the same questions put to each owner would compare together better than any other way, and obtain the same kind of information from each :—

	Ebenezer Fox.	Wm. P. Sanderson.	Samuel Burton.	Wm. Merrill.	Darius Stickney.
How many years have you had your farm ?	21	20	5	30	10
What is the whole number of acres ?...	96	100	170	70	140
What is the number of acres cultivated ?	38	40	60	20	31
How many acres in pasture ?	58	50	60	45	90
" grass ?.....	26	34	35	25	20
" corn ?	4	4	3	2	5
" potatoes ?	½	1	1	½	6
" orchard ?					
" oats, rye, barley and wheat ?	7	3	3	3	3½
How many cows do you keep ?.....	9	12	8	4	14
" oxen ?	4	2	2	2	0

	Ebenezer Fox.	Wm. P. Sanderson.	Samuel Burton.	Wm. Merrill.	Darius Stickney.
How many store cattle?	2	0	11	15	3
" sheep?	0	0	0	0	0
" hogs?	4	2	5	2	3
" horses?	1	1	2	1	3
Do you keep more stock than formerly?	yes.	yes.	yes.	yes.	yes.
How many loads of manure do you make?	150	kept no account.			
Do you plow in manure?	yes.		yes.	yes.	yes.
" compost it?	yes.	yes.	yes.	yes.	yes.
" top dress grass land?	yes.	yes.	yes.	yes.	yes.
" manure in the hill?	yes.	no.	no.	yes.	no.
" harrow in manure?		yes.			
How many hired men do you keep?	2s.	1m.	1b.	1b.	1b. 1m.
How much paid for day labor?	$15	$30	$15	$32	$32
Is there profit in fattening pork?	yes.	yes.		yes.	
Do you raise root crops?					
Do you consider it profitable?					
What is the state of your fences?	good.	good.		good.	

In the opinion of the committee, a premium farm should be so managed in all its departments that there should be a handsome profit on each branch, and they are happy to say, that to a good degree they found things so on the farms they visited, but yet there is room for improvement. They are aware that it requires a good deal of perseverance, skill, judgment and care in the farmer to keep a large set of buildings in good order, and everything neat among them, to keep a farm well fenced, drained and well cultivated, well manured, so as to raise remunerating crops of hay, grain, &c., to compost sure and properly, apply all his manure, do all his work in proper season, provide for all the wants of a family, dispose of surplus produce to the best advantage, to select, raise and manage such stock as will be most

profitable, to raise or select the best seed for sowing or planting, plant them in proper season, to raise or select such fruit trees as are needed, and keep them in proper order, to procure the most suitable tools, and keep them in proper order, and use them to the best advantage; to see that his hired help do their work properly; yet all this, and much more, is actually required to be a successful farmer. Who then shall say that it does not require as much talent to be a good and successful farmer, as for the professional man, the tradesman or mechanic? It sometimes happens that a farmer has a favorite pursuit on which he may apply too much care and attention to the neglect of others, but it is a bad policy, as all the branches are connected together, and support each other like the spokes in a wheel, and for this reason all branches should receive their proper share; and there are many of our stay-at-home farmers who might profit by a tour of examination, and see what is going on in some other places besides their native town.

The farm of Mr. Fox, to whom we award the first premium, when he first came into possession of it, must have been in a pretty rough state, and now shows that there must have been a great deal of well directed labor and skill employed upon it. The buildings, though rather old, were in good condition, and the most careless traveller in passing must have observed that it was the home of industry and prosperity. The fence on the farm is a very substantial stone wall, of which the owner has built three and a half miles. The fields showed that they were cultivated with taste; the cattle that were grazing in the fields showed that they were well cared for; the fruit-trees were thrifty, and gave evidence that in a season of fruit they were capable of bearing an abundance. Mr. Fox sells hay, grain, fruit, beef and pork, &c.

What has been said of the farm and buildings of Mr. Fox, will in most respects apply to that of Mr. Sanderson. The fences are of the same kind, but not so great in length. Mr. Sanderson has paid great attention to raising fruit trees and fruit, and has five orchards of apple, pear, peach, plum, &c., all in good order, and a fine lot of nursery trees for sale; he also pays

great attention to the composting of manure, and has tanks or vats under his stable for the preservation of the liquid manure, of which the committee thought very favorably. Mr: S. has and is still making great improvements; sells mostly trees, fruit, vegetables, milk, meat and butter.

The farm of Mr. Burton, of Wilton, comes next in order, and showed that, although he had not long held possession, that improvement is the order of the day, and that Mr. B. is not only a great worker, but that he knows how to do his work. He pays great attention to composting and saving his manure, and also to the raising of fruit, and has a fine orchard of apple, peach and other fruits in a very flourishing state. Mr. B. is increasing his stock, and sells hay, grain and milk. Of the latter, thirty-five cans per week go to Boston.

The farm of Mr. Merrill, of Hollis, the next in order, is easier of culture than the preceding ones, and shows a very good degree of improvement in all the departments—the fences good, the fields well laid down, bushes cleared from the fences, buildings in good order, &c. Mr. Merrill sells hay, fruit, pork and live stock, and everything appears in a flourishing condition.

The farm of Mr. Stickney of Pelham, when he took possession of it, was in a low state of cultivation, and the soil of rather poor quality; much of it had been run down with rye, so that labor and manure do not make so much show or give so great a profit as that expended on a better soil. Mr. S. has made great improvements in reclaiming bog meadows, and by top-dressing his low land, draining, &c., to such a degree that he has been able to increase very much his stock. He has also improved his buildings. His land is not favorable for raising fruit, yet he is doing something in that line. He sells wood, potatoes and milk. Of the latter, he sold in 1852, 7140 gallons, amounting to $713 67.

BOG MEADOWS.

There were but two entries in this branch of improvement.

They were made by Mr. John Dodge of Bennington, and Mr. Asa Butler, Jr., of Pelham.

From Mr. Dodge's statement we take the following account of his mode of management, viz: "In the first place I cut one main ditch through the entire meadow, of sufficient size to carry off all the water, and then cut others of smaller size to bring the water into the large one; the land was then dug over and sand and gravel mixed with the soil. The quantity of land reclaimed, five or six acres, and the work was done at odd jobs, when it was most convenient, and no account of the expense was ever kept. The crop has been mostly foul meadow grass, and I have saved from thirty to sixty bushels of seed per year; the seed is secured by reaping off the best of it, and then the stubble is mowed for fodder. No manure has ever been used upon it. In this way it has been very profitable."

Mr. Butler's Statement.

The lot of meadow I enter for premium contains five acres. When I commenced operations, the brook running through it was very crooked; there were holes where mud had been carted out, and about one hundred and fifty rods of old ditch just where it was not wanted; there were also rocks, hassocks, hills, holes, &c. The crop consisted of bushes, checkerberry, cranberry vines, and coarse meadow grass, so poor that much of it never paid for getting, and some of it was so poor that it was not always mowed. The whole did not produce more than forty or fifty cocks of hay per year.

I commenced operations by digging new ditches and channels for the brook, and used the mud and gravel to fill up the old ones, and levelled the high places to get gravel to cover with, then covering these places with mud soil. My mode of covering meadow is as follows: after the ground is levelled, I put on gravel enough to cover all the grass at least one inch deep, and sow the grass seed just before a rain, as it settles in better. I then sow rye, oats or wheat, to protect the young grass during

the season, and put on a good coat of manure, as it helps to make a new sod that keeps down the old grasses; quantity, fifteen to eighteen loads compost manure to the acre. In this way I have succeeded in raising good crops of grain, and mow the stubble afterwards. After the first year, I put on a light coat of fine manure annually, say six or seven loads spread from the cart or barrow, and this keeps up the crop of herdsgrass and red-top; some of the older parts of it, quite three tons per acre.

Two acres of the five have been reclaimed by planting potatoes in beds after the Irish fashion, and is done as follows: after the ground is levelled, lay lines four feet apart, being the size of the beds, and then spread on a good coat of long or strawey manure, say at the rate of twenty loads per acre, and put on the seed potatoes about ten inches apart each way, and dig ditches each side of the bed, and cover to sufficient depth to kill the grass and start the potatoes, putting one half of what comes out of the ditch on each side. The ditches should be sixteen or eighteen inches wide, and should the ground crack badly, more soil may be taken from the bottom of the ditch, and put on to cover deeper. This, if well done, is all they will need till harvesting.

The second year I plant in drills, making one row in the middle of the bed, and the other in the ditch, after filling up with the old vines and soil, and putting most manure in the row that is in the bed; the seed I put eight or nine inches apart in the drills. I commonly plant and dig early, and then sow my grass seed and grain the same year, and am sure of a good crop the next season.

I cannot tell the expense, as I have done it at odd jobs at all seasons, and have never hired extra help, doing at least one half of it myself. A man will plant about eight square rods in a day the first year, and twenty the second. I have generally raised at the rate of about 250 bushels per acre the first year, and 300 the second. This year I have a failure in my late planted crops, and shall not get more than half of the usual crop. I think that my meadows have paid well, and that they are as profitable as any other land.

ASA BUTLER, Jr.

NURSERIES.

Mr. Holt's Statement.

The land on which my nursery is situated is hard and rocky, formerly pasture; the soil a gravelly loam. It is six years since it was planted, and since that time I have raised apples, pears, peaches, plums, grapes, apricots, cherries and quinces from trees planted and budded by my own hands. My nursery contains of budded trees between nine and ten thousand, mostly apples, with an assortment of other fruits; also a good quantity of apple and pear seedlings.

The above trees were raised with but very little manure of any kind, and consist of a good assortment of early and late fruit suited to all seasons.

Mr. Little's Statement.

The land on which my nursery grows was bound out pasture, planted one year and sowed to trees, one part six and the other seven years ago. The nursery contains about two thousand trees, all budded, mostly Baldwins, but containing an assortment of early and late fruit of ten or twelve kinds. I cultivate it with the hoe, believing that the plough or cultivator would destroy the upper and best roots, and manure lightly with fine compost manure, late in the fall.

Remarks.—Both of the above were under a good state of cultivation, and free from weeds. If fruit can be raised in six years from seed, I am sure that there is no reason for people to fear, when setting trees, that they shall not eat the fruit thereof.

KITCHEN GARDENS.

There were but two entries of gardens, and the committee were unanimous in their opinion that this branch of husbandry

did not receive from the farmers of this county near as much attention as its importance demands. The entries were made by Mr. Eli Hamblett, of Hudson, and Charles A. Hall, of Manchester.

Mr. Hamblett's Statement.

Gentlemen:—My garden contains one-fifth of an acre of land; the soil a sandy loam, inclining a little to the south. As early in the season as the land could be plowed, I put on nine horse-loads of compost manure and plowed it in. That part occupied by the beds was made fine and light by forking and raking in the usual way, and the seed put in at intervals until the 16th of June; the part which was planted late was plowed three times.

The following is a list of vegetables, &c., raised, viz: potatoes, peas, (three varieties,) beans, cabbages, (two varieties,) turnips, (early and late,) beets, parsnips, carrots, onions, cellery, peppers, tomatoes, (two varieties,) cucumbers, watermelons, muskmelons, rhubarb, spinnach, peppergrass, lettuce, and three varieties of squashes, with a good assortment of herbs; also, currants and gooseberries, in quantities sufficient to supply my family, and sold three bushels of the former.

ELI HAMBLETT.

Charles A. Hall's Statement.

The following is the statement taken from Mr. Hall, while on his premises, viz: the land planted with vegetables contains several acres, and was planted with onions, beets, carrots, peas, beans, cabbages, summer squashes, cucumbers, lettuce, peppergrass, &c., and appeared to have been done in quite a workmanlike manner; but on account of sickness in his family, Mr. Hall had permitted more weeds to accumulate on his premises than he will find for his interest. This place was visited at the time of the State Fair, by only one of the committee, and after a consultation with the other members, we came to the conclusion

that it could not be considered as a kitchen garden, but a vegetable farm. The produce sold in 1852 in the Manchester market amounted to the sum of $187 22, and in 1853, to the time of the Fair, about $600, leaving a large amount of root crops, &c., on the ground. As the Society had not offered a premium for an establishment of this kind, and the premiums on farms having been declared, the committee did not feel authorized to make any award of one, but cheerfully take the liberty to recommend a diploma.

When the committee were on their tour of examination, they were invited to visit the garden of Mr. Caleb Putnam, of Wilton, where they found a small patch of ground completely covered with vegetables of almost every kind, in a very good state of cultivation, and entirely free from weeds; also all the common kinds of herbs, pears, plums and peaches, with twenty kinds of flowers. Mr. Putnam is about 80 years of age, and quite lame and infirm, yet he manages to cultivate his garden himself; and although he is not a member of the Society, the committee were unanimous in their opinion that he richly deserved a diploma, and accordingly recommended one.

They also visited the residence of the late Gen. Miller, where they found a farm, garden, shrubbery, stock, poultry, &c., under the management of two daughters of the general, who, although they were brought up in the city, manage their affairs much better than some men do who have spent their whole lives on a farm in plodding along in the same old track their fathers trod. Their flower-garden and shrubbery, and fruit in particular, are worthy of much credit, and attract a good deal of attention, and the committee unanimously recommend that the Society's Diploma be awarded them for their perseverance and skill in managing their affairs.

WHEAT.

There were three entries of wheat, viz: Charles H. Holt, Lyndeborough; Stillman Hutchinson, Milford; M. S. Wilson, New Ipswich.

From Mr. Holt's statement I gather the following:

Charles H. Holt's Statement.

The land on which my wheat grew was formerly in grass until it was bound out, and then pastured eight years. In 1852 it was plowed, and manured at the rate of thirty-three loads per acre, of compost, three-fourths mud, and planted with corn, and produced 127 bushels on one and a half acres, being at the rate of 84 bushels per acre, (a premium crop.) In 1853, the last of April, the land was plowed and sown with wheat, without manure, and the following is the result:

Dr.

To plowing,	$3 00
Harrowing,	1 00
Four bushels seed, and sowing,	7 00
Harvesting,	3 00
Threshing,	4 00
Use of land,	6 00
	$24 00

Cr.

By 36 bushels of wheat, at $1 75 per bushel,	$63 00
Two tons straw,	14 00
	$77 00
Deduct expenses,	24 00
Net profit,	$53 00

—being at the rate of $35 33 per acre profit.

CHARLES H. HOLT.

Mr. Hutchinson's Statement.

[This statement is the same as published in the report of the State Society.]

Mr. Wilson's Statement.

The land on which my wheat grew was planted with corn in 1852, and manured at the rate of twenty-four loads per acre; the soil a gravelly loam. In 1853, ten loads per acre of old manure were plowed in, and the following is the result. There was 1 7-8 acres of land sowed.

Dr.

To plowing,	$2 00
Harrowing,	1 00
Seed and sowing,	6 00
Harvesting,	3 00
Threshing,	4 40
Rent of land,	3 00
Manure,	10 00
	$29 40

Cr.

By 44 bushels 12 quarts wheat, at $1 50,	$66 38
One ton straw,	5 00
	$71 38
Deduct expenses,	29 40
Net profit,	$41 98

MATTHEW S. WILSON.

In the opinion of the committee, the sum allowed for plowing, harvesting, and the rent of land, are too low; and on the other hand Mr. Wilson does not prize his grain or straw so high as the others.

RYE.

The number of entries was four, viz: Geo. W. Averill, Mont Vernon; B. F. Cutter, Pelham; D. Clement, Hudson; Levi McIntire, Milford.

George W. Averill's Statement.

The crop of rye entered by me for premium grew on land

that had been pastured for forty years, and was completely bound out; was plowed in the summer of 1852, and sowed one acre the last of September, and the following is the result:

Dr.

To plowing one acre,	$3 50
Sowing and harrowing,	1 50
Seed,	1 15
Harvesting,	2 75
Threshing,	2 33
	$11 23

Cr.

By 23 bushels rye,	$23 00
Straw,	9 00
	$32 00
Deduct expenses,	11 23
Net profit,	$20 77

GEORGE W. AVERILL.

[Mr. Averill says nothing about rent of land.—B. F. C.]

—

B. F. CUTTER'S STATEMENT.

The crop of rye entered for premium by me grew on land that was planted with corn in 1852, which was manured with twenty-seven loads of compost. The soil is a sandy loam. After the corn was harvested the piece was cultivated once, then sowed and harrowed; sowed about the last of September. The following is the result:

Dr.

To cultivating,	$ 60
Seed and sowing,	1 25
Harrowing,	45
Harvesting,	3 00
Threshing,	2 00

Rent of land,	6 00
	$13 30

Cr.

By 20½ bushels rye,	$20 50
1½ tons straw,	15 00
	$35 50
Deduct expenses,	13 30
Net profit,	$22 20

B. F. CUTTER.

—

DANIEL CLEMENT'S STATEMENT.

The crop of rye I entered for premium grew on land that was in rye the year previous. The soil, gravelly loam, without manure. Sowed about the middle of September, with the following result:

Dr.

To plowing 1 acre,	$1 75
One bushel seed, and sowing,	1 25
Harrowing twice,	1 00
Harvesting,	2 50
Threshing,	2 00
Rent of land,	0 00
	$8 50

Cr.

By 23 bushels 23 quarts rye,	$23 71
One ton straw,	9 00
	$32 71
Deduct expenses,	8 50
Net profit,	24 21

D. CLEMENT.

LEVI McINTIRE'S STATEMENT.

The crop of rye I entered for premium grew on seven-eighths of one acre of land that was planted with early potatoes the year previous. The following is the statement of management and the result, viz:

Dr.

To plowing, sowing and harrowing,	$3 00
One bushel seed,	1 00
Harvesting,	2 00
Threshing,	2 00
Stubble, cutting, &c.,	1 50
One hundred bushels apples,	10 00
Rent of land,	0 00
	$19 50

Cr.

By 25 bushels rye,	$25 00
1½ tons straw,	10 50
Stubble sold,	3 00
	$38.50
Deduct expenses,	19 50
Net profit,	$19 00

LEVI McINTIRE.

REMARKS.—It will be seen by these reports that there is quite a difference in the price of the straw, owing partly to the vicinity of a market. When my rye was threshed, straw was selling in Lowell for $13 per ton, and I was offered, and refused, $12. It will be seen that no allowance is made in three of the statements for the use of land, which I think is wrong. I consider rye to be one of the most exhausting crops that are raised, and should rather my land should go without cropping than to let it to raise rye on for less than $6 per acre, especially if the land was worth $50 per acre.

In regard to Mr. Clement's crop, the committee were of the opinion that his rye must have been remarkably full in the kernel for one ton of straw to have produced so much rye.

CORN.

The number of entries of corn was five, viz: Oliver Barrett, Wilton; John Richardson, Lyndeborough; John Averill, Mont Vernon; Nathan Cutter, Nashua; S. M. Stanley, for William Kimball, of Temple.

Mr. Averill's Statement.

The crop of corn I entered for premium grew on land that has been in pasture until it was completely bound out, producing nothing of consequence but moss. The ground was plowed the 1st of November, 1852, and at the rate of fourteen loads to the acre of barn-cellar compost manure turned under. In May, 1853, it was again plowed, and thoroughly loosened ten inches deep, then furrowed both ways, three feet ten inches apart, and seven loads of compost manure put in the ground, and planted May 16, 17 and 18, with eight rowed corn, five kernels in each hill; hoed twice, viz: first time during the first week in June, second time during first week in July, and cut the stalks the first week in September. The corn was all harvested by the 10th of October, and produced at the rate of 84 bushels per acre. The cost of cultivation was as follows:

Dr.

Plowing,	$9 00
Manure,	10 00
Planting,	4 00
Hoeing, four days,	4 00
Harvesting,	6 00
Rent of land,	5 00
	$38 00

Cr.

By 83 bushels 31 quarts corn,	$83 97
By corn-stalks and husks,	13 50
	$97 47
Deduct expenses,	38 00
Net profit,	$59 47

JOHN AVERILL.

Oliver Barrett's Statement.

The crop of corn I entered for premium grew on land that was in corn in 1852, and had about seventeen loads of manure per acre. The soil is a gravelly loam. In 1853 I plowed, and then put on fifteen loads per acre, and plowed it under and harrowed it smooth, and planted with the corn-planter. The corn was hoed three times on account of witch-grass, and plaster and ashes put on between the first and second hoeing. The cost of cultivation was as follows:

Dr.

To plowing twice,	$5 00
One half of the manure,	7 50
Planting,	1 00
Hoeing three times,	6 00
Harvesting,	6 00
Plaster and ashes,	2 75
Use of land,	5 00
	$33 25

Cr.

By 75 bushels corn,	$75 00
By stalks and husks,	15 00
	$90 00
Deduct expenses,	33 25
Net profit,	$57 75

OLIVER BARRETT.

John Richardson's Statement.

The crop of corn I entered for premium grew on land that had on it a crop of potatoes in 1852, and was manured with twenty loads of one half green and one half compost manure. The soil is a gravelly loam. This year I plowed under eight inches deep, twelve loads per acre of green manure, and furrowed each way three and a half feet, and manured in the hill

with nine loads of compost, and planted it May 16th and 17th, putting four kernels in a hill, and hoed it twice. The following is the expense of cultivation:

Dr.

To plowing,	$3 17
Harrowing and furrowing,	1 00
Planting,	4 33
Hoeing,	6 33
One half of manure,	10 50
Rent of land,	5 00
Harvesting,	9 00
	$39 33

Cr.

By 70 bushels corn,	$70 00
By stalks and husks,	25 00
	$95 00
Deduct expenses,	39 33
Net profit,	$55 67

JOHN RICHARDSON.

Mr. Stanley's Statement.

The crop of corn I entered for premium grew on land that had been in grass six or seven years, and in 1852 was very light, having had no manure. The piece contains 1-1-8 acres; the soil a gravelly loam, with some clay. In the spring of 1853, six and a half cords of long manure was spread on the sward, and plowed under eight inches deep, and then rolled. Then three and a half cords of yard compost of mud spread on and harrowed in. The land was then furrowed one way two feet and six inches, and a compost of hen manure, night soil, ashes and meadow mud, one third of a pint dropped in the hill, in rows, the other way, at the same distance apart.

After the corn came up the cultivator was run through, first

one way, and after a few days run the other way, so that very little needed to be done with the hoe, the ground being kept level. The corn was planted May 24th and 28th, and cut up and shooked September 15 to 20, and yielded 133 baskets.

The corn from two equal baskets, after drying till November 8th, was shelled, and produced nineteen quarts to the basket, being a fraction over 70 bushels to the acre. The following is the expense of cultivation, allowing ten cents per hour for a man, the same for a yoke of oxen, and thirty-five for man, boy and cultivation:

Manure put on,	$45 00,	charged to corn,		$15 00
Plowing, rolling, harrowing and furrowing,	50,	"	"	50
Cultivation,	3 60½,	"	"	1 80
Planting,	3 50,	"	"	3 50
Compost in hill,	4 00½,	"	"	2 00
Shooking, getting in,	4 40,	"	"	4 40
Seed,	20,	"	"	20
Rent of land,	3 38,	"	"	3 38
	$68 83			$33 86

No account was made of husking, the work all being done at odd jobs, and in the evening. The corn crop being a preparatory crop, I consider $33 86 all that is justly chargeable to it.

Cr.

By 79 bushels corn,	$79 00
By corn-fodder,	17 00
	$96 00
Deduct expenses,	33 86
Net profit,	$62 14

S. M. STANLEY, for WM. KIMBALL.

[The above is the statement made by Mr. Stanley, but it is so obscure as to afford but little information. Our knowledge of figures does not enable us to obtain the given result.—*Sec'y of State Society.*]

The piece of Deac. Isaac Kimball, on the same farm, which the committee looked at, was managed in the same way, with about the same results.

Mr. Nathan Cutter, of Nashua, had a very good field of corn, and if he had complied with the regulations of the Society, and sent in his statement, it is probable he would have taken one of the premiums.

Remarks on Corn Culture.

It will be seen by the foregoing statements, that there is a difference of opinion in regard to the value of corn fodder, and in the quantity of manure chargeable to the corn crop, and also in the rent of land. I think they all get the expense of plowing too low. It costs me about $4 00 per acre to turn grass ground eight inches deep, and two days' work per acre to cut and bind stalks. All the above crops were raised without hilling up, and the committee were of the opinion that it was the best way.

Taking the foregoing statements as our guide, it will be seen that the average cost of the corn was less than 45 cents per bushel, but in the opinion of at least one of the committee, the corn would not hold out, as no allowance is made for the shrinkage of the corn from the time of husking till it was shelled. There is no doubt but that corn is one of the most profitable crops, producing more food for man and beast than any other, with the same outlay, and also one of the surest to pay for all that is done for it, and leaves the land in good condition for succeeding crops.

BARLEY.

There was but one entry of barley, that being by William H. Howard, of Temple.

Mr. Howard's Statement.

The acre of barley I entered for premium grew on land that

was in corn the year previous, and was then well manured. The barley was sown June 2d, and the following is the result:

Dr.

To splitting hills, with boy, horse, &c., four hours,	$1 00
Cultivating with oxen, do.,	1 20
Three bushels seed, and sowing,	2 45
Harrowing and rolling,	80
Harvesting, 1½ days' work,	1 50
Threshing with machine, 7½ cents per bushel,	1 95
Use of land and manure of the previous year,	9 80
	$18 70

Cr.

By 26 bushels of barley, at 75 cents,	$19 50
Straw,	1 95
	$21 45
Deduct expenses,	18 70
Net profit,	$2 75

The crops suffered very much from drouth.

WM. H. HOWARD.

REMARKS.—The above did not appear to the committee to be more than a middling crop, and therefore hardly deserving a premium; but there is one good thing about it, and that is, it shows about how much we have got to raise per acre to pay the expense of cultivation.

POTATOES.

The number of entries was three, viz: by John Dodge of Bennington; John Averill of Mont Vernon; William Howard of Temple.

MR. AVERILL'S STATEMENT.

The land on which the crop of potatoes grew that I entered for premium had been pastured about forty years, and was com-

pletely bound out, producing nothing of consequence but moss. It was broken up during the summer of 1852, cross plowed in November, and again in May, 1853, turning under six loads of green manure from the barn cellar. The ground was then harrowed and furrowed both ways, three and one half feet apart, and planted May 25th, putting two pieces or potatoes of the size of a hen's egg in each hill. They were hoed once only, in the last week in June, and dug about the middle of October, and the following is the result:

Dr.

To plowing one acre three times,	$9 00
Manure,	4 00
Planting,	3 00
Seed,	2 50
Hoeing, two days,	2 00
Harvesting,	4 50
Rent of land,	0 00
	$25 00

Cr.

By 150 bushels potatoes, at 42 cts. per bushel,	63 00
Deduct expenses,	25 00
Net profit,	$38 00

JOHN AVERILL.

—

JOHN DODGE'S STATEMENT.

The one half acre of potatoes I enter for premium grew on land that was in grass the year previous, and was plowed nine inches deep in September, 1852. In May, 1853, put on five loads of green manure, and plowed it in, then harrowed and furrowed three and a half feet apart, and put in five loads of fine manure in hills, two and a half feet apart the other way, and planted May 25th, putting two pieces in each hill of the size of a hen's egg. They were hoed twice, viz: the 15th and last of June, and dug the 1st of October. The following is the result, viz:

Dr.

To plowing, harrowing and furrowing,	$3 50
Manure,	11 50
Planting, hoeing and digging,	5 25
Seed,	1 67
Use of land,	2 00
	$23 92

Cr.

By 75 bushels assorted Carter potatoes, 50 cts. per bush.,	$37 50
By 22 bushels small ones,	4 40
	$41 90
Deduct expenses,	23 92
Net profit,	$17 98

JOHN DODGE.

WILLIAM H. HOWARD'S STATEMENT.

The one half acre of potatoes I entered for premium grew on a bog meadow that was broken up and prepared in 1852. June 14th, 1853, the land was harrowed with a horse wearing bog shoes. June 15th, planted in the following manner: the potatoes were dropped, two pieces in each hill; the compost, two thirds stable, one third good manure; the potatoes were not hoed at all. The result is as follows:

Dr.

To harrowing and planting, six days' work,	$6 00
Seed,	1 75
Manure,	3 00
Harvesting,	5 25
	$16 00

Cr.

By 100 bushels assorted potatoes, 50 cts. per bushel,	$50 00
5 bushels small ones, at 20 cts.,	1 00
	$51 00

Deduct expenses,	16 00
	$35 00
Transportation to railroad,	3 00
Net profit,	$32 00

WILLIAM H. HOWARD.

CARROTS.

There were two entries, the first by William H. Howard, of Temple, and the second by Brooks Shattuck, of Bedford.

Mr. Howard's Statement.

The one fourth of an acre of carrots I entered for premium grew on land that was in carrots the year previous. May 14th, sowed on one hundred forty-eight pounds of Mexican guano, and plowed it in deep. May 17th, sowed on twenty-four bushels of ashes, cultivated, raked, and sowed with a machine one half lb. of seed. Expenses:

Dr.

To plowing, two days' work,	$2 00
Cultivating, sowing, &c.,	1 00
148 lbs. Mexican guano, 2 1-4 cts. per lb.,	3 33
24 bushels ashes, 14 cents per bushel,	3 36
June 20, hoeing with machine,	50
July 1, hoeing and thinning, two days' work,	2 00
July 12, hoeing and cleaning, three-fourths day's work,	75
Aug. 12, weeding, 1½ hours,	12
Use of land, at $3 per acre,	1 80
Digging, 2½ cts. per bushel,	5 25
One half pound seed,	50
	$20 61

Cr.

By 210 3-8 bushels, of 50 lbs. per bushel, at $9 per ton, or 22½ cts. per bushel,	$47 33
Deduct expenses,	20 61
Net profit,	$26 72

WILLIAM H. HOWARD.

Brooks Shattuck's Statement.

The land on which my carrots grew was plowed twice in the spring of 1852, and manured with compost, (equal parts year previous,) at the rate of about twenty-four loads of thirty-two bushels per acre, and sowed to mangel wurtzel; the yield not very good.

In 1853, land was plowed two inches deeper, and treated otherwise as in 1852. I then sowed on one half of it, fifty pounds guano, and on the other half, fifty pounds of Mapes' improved superphosphate of lime, and after pulverizing it well, sowed it to carrots June 30, with Pratt's Seed Sower, putting the rows two feet apart. As soon as the carrots were of suitable size they were hoed, and the ground cleared of weeds, and the operation repeated once more during the season, and the ground kept clean and level.

The last of October I harvested one hundred and fifty bushels, as measured by my son, G. Shattuck, being at the rate of six hundred bushels to the acre.

The amount of land on which the crop grew was forty rods; the soil a gravelly loam, or what would be called good corn land. That part where the guano was put is inclining to wet, and the seed came up well, and some parts of it produced at the rate of over one thousand bushels per acre, while that where the phosphate of lime was put was more dry, and only a small part of the seed came up.

BROOKS SHATTUCK.

CABBAGES.

There was but one entry, and that was by Brooks Shattuck, of Bedford, and the following is his statement:

The ground on which I grew my cabbages is quite wet, but good hard land soil. It was in grass previous to 1852, when it was turned up and well manured with compost of one half cow manure, the other half meadow mud, and planted with potatoes, of which there was a good crop. In 1853 the land was pre-

pared by plowing and harrowing in three loads of compost of thirty-two bushels each. The ground was then marked into rows three and a half feet apart, and the plants set about two and a half feet in the rows, applying half a gill of the improved superphosphate of lime to each plant.

They were hoed twice, and at the last hoeing, about the same quantity of the phosphate applied as before. On one half of the piece, as counted myself, there were 1144 heads, or at the rate of 9152 per acre. Nine hundred of the above have been sold at the average price of 6½ cents, or at the rate of about $550 per acre; the quantity of land cultivated being forty square rods.

No account of the expense of the crop is given, as it was not cultivated with the intention of entering it for a premium.

BROOKS SHATTUCK.

TURNIPS.

Charles H. Holt's Statement.

The lot of turnips I enter for premium grew partly on land where my early potatoes, peas and beans had been taken off, and in a nursery where I had set my seedling apple trees, and included forty-one rods of ground. The land had a fair dressing of compost manure, early in the spring, but none afterwards. The seed was sown July 15th, with no other expense than two hours' work raking it in. The following is the result:

Dr.

To four days' work sowing and harrowing,	$3 33

Cr.

By 166 bushels turnips, 17 cts. per bushel,	$28 72
Value of tops,	2 50
	$31 22
Deduct expenses,	3 33
Net profit,	$27 39

CHARLES H. HOLT.

The foregoing report on farms, bog meadows and farm products is submitted by

B. F. CUTTER, for the committee.

CHESHIRE.

OFFICERS.

President,

DAVID BUFFUM, Walpole.

Vice Presidents,

JONATHAN S. ADAMS, Fitzwilliam;
J. K. SMITH, Dublin;
ISAIAH GOULD, Stoddard.

Executive Committee,

EBENEZER PROCTOR, Alstead;
ORATUS PERRY, Chesterfield;
H. C. PIPER, Dublin;
WM. D. LOCKE, Fitzwilliam;
AMHERST HAYWARD, Gilsum;
TIMOTHY A. BASCOM, Hinsdale;
WM. LEBORVEAU, Jaffrey;
T. H. LEVERETT, Keene;
J. Q. JONES, Marlow;
GEORGE CAWEY, Marlboro';
UPTON BURNAP, Nelson;
UBERTO BOWEN, Richmond;
GEORGE BREWER, Rindge;
D. W. BUCKMINSTER, Roxbury;
JOHN STEVENS, Stoddard;
DANIEL H. MASON, Sullivan;
PETER HAYWOOD, Surry;
PAUL F. ALDRICH, Swanzey;
JOSEPH M. FORMSTALL, Troy;
FREDERICK A. WIERS, Walpole;

ROBERT E. GREEN, Westmoreland;
A. J. HUMPHREY, Winchester.

Secretary and Treasurer,

H. A. BILL, Keene.

THE FAIR.

The annual Fair was held on the 28th and 29th of September. The following awards were made:

BULLS.

George K. Wright, Keene, best bull,	$8 00
S. W. Buffum, Winchester, best Durham bull,	5 00
Warren Shelly, Westmoreland, next best,	4 00
Alonzo Farr, Keene, next best,	2 00
George Joslin, Surry, best bull of mixed breed,	5 00
Charles Reed, Fitzwilliam, pair matched bulls,	8 00

COWS.

Ashley Jones, Keene, best without regard to breed,	5 00
Daniel G. Jones, Dublin, best native or mixed,	4 00
George Harvey, Marlboro', next best,	3 00
John Chamberlain, Keene, next best,	2 00
Charles Bridgman, Keene, next best,	1 00
John Lawrence, Keene, best lot of dairy cows,	6 00

The committee examined 22 Durham calves owned by S. W. Buffum and James Fosgate, of Winchester, which were worthy of a premium.

HEIFERS.

George Joslin, Surry, best pair of three years old,	3 00
John Lawrence, Keene, next best,	2 00
Daniel H. Mason, Sullivan, best pair two years old,	2 00

George Joslin, Surry, next best,..... 1 00
Aaron M. Graves, Walpole, best yearling,..... 2 00
Henry W. Smith, Keene, next best,..... 1 00

DURHAM HEIFERS.

Josiah Bennett, Westmoreland, best three years old,.. 3 00
S. W. Buffum, Winchester, best two years old,..... 2 00
Josiah Bennett, Westmoreland, best yearling,..... 2 00

DEVON HEIFERS.

T. M. Edwards, Keene, best two years old,..... 2 00
T. M. Edwards, Keene, best yearling,..... 2 00

OXEN.

George A. Nutting, Marlboro', first premium,..... 6 00
George K. Wright, Keene, second premium,..... 5 00
George D. Kingsbury, Walpole, third premium,..... 4 00
Alfred H. Lawrence, Keene, fourth premium,..... 3 00
James Wright, Keene, fifth premium,..... 2 00
S. A. Towne, Keene, sixth premium,..... 1 00

FOUR YEARS OLD OXEN.

D. W. Buckminster, Roxbury, first premium,..... 4 00
Lucius Nims, Sullivan, second premium,..... 3 00
George K. Wright, Keene, third premium,..... 2 00
Elijah Blake, Keene, fourth premium,..... 1 00

STEERS.

George Crehore, Surry, best pair three years old,..... 3 00
S. & A. Seward, Sullivan, second best,..... 2 00

Asa Baker, Jaffrey, third best,..... 1 00
Henry A. Bryant, Fitzwilliam, best pair two years old, 2 00
S. W. Buffum, Winchester, second best,..... 1 00
Warren Shelly, Westmoreland, best pair yearling steers,..... 2 00

FAT CATTLE.

Elijah Blake, Keene, best fat oxen,..... 5 00
Asa Baker, Jaffrey, second best,..... 3 00
William Lebourveau, Jaffrey, best fat cow,..... 3 00

STALLIONS.

Fred. A. Weir, Walpole, first premium,..... 4 00
Edwin Greenwood, Marlboro', second premium,..... 2 00

BREEDING MARES.

Gideon Clark, Keene, first premium,..... 4 00
Joseph Rugg, Keene, second premium,..... 2 00

WORK HORSES.

Azel Wilder, Keene, first premium,..... 3 00
S. T. Collins, Fitzwilliam, second premium,..... 2 00

CARRIAGE HORSES.

Stillman French, Keene, first premium,..... 5 00
J. D. Dunbar, Keene, second premium,..... 3 00
J. W. Briggs, Keene, third premium,..... 1 00

SAXONY AND MERINO SHEEP.

George D. Kingsbury, Walpole, best Saxony buck,.. 3 00
David Wilson, Swanzey, next best,..... 2 00
George D. Kingsbury, Walpole, four best Saxony ewes, 3 00
T. M. Edwards, Keene, next best,..... 2 00
David Wilson, Swanzey, best Merino buck,..... 3 00
George Bundy, Walpole, next best,..... 2 00
Seth Wadsworth, Roxbury, next best,..... 1 00

LONG WOOL SHEEP.

Fred. A. Weir, Walpole, best buck,..... 3 00
Martin Wilson, Westmoreland, next best,..... 2 00

The committee noticed two very fine buck lambs belonging to Messrs. Weir and Graves, of Walpole.

FAT SHEEP.

Aaron A. Graves, Walpole, first premium,..... 3 00
F. A. Wier, Walpole, second premium,..... 2 00

These sheep were a cross of Calswald with the Irish and native breeds, and showed very conclusively the fine fattening qualities of the first named.

SWINE.

John T. Harvey, Keene, best boar,..... 3 00
Ira Hodskins, Keene, next best,..... 2 00
John Lawrence, Keene, best sow,..... 3 00
Samuel A. Towne, Keene, next best,..... 2 00
Azel Wilder, Keene, next best,..... 1 00

TOWN TEAMS.

Keene, first premium,.....10 00

Marlboro', second premium,..... 8 00

PLOWING.

T. H. Leverett, Keene, first premium,..... 6 00
A. H. Towne, Keene, second premium,..... 5 00
J. Lawrence, Keene, third premium,..... 4 00
Oratus Very, Chesterfield, fourth premium,..... 3 00
Alfred S. Blake, Keene, fifth premium,..... 2 00
Ralph J. Holt, Keene, sixth premium,..... 1 00

BUTTER.

Gilman White, Westmoreland, first premium,..... 3 00
J. D. Gibbs, Jaffrey, second premium,..... 2 00
Mrs. Aaron Day, Gilsum, third premium,..... 1 00

CHEESE.

Gilman White, Westmoreland, first premium,..... 3 00
David Woodward, Keene, second premium,..... 2 00
Upton Burnap, Nelson, third premium,..... 1 00

POULTRY.

Stillman French, Keene, best barn door fowls,..... 1 00
Justin S. Blake, Keene, best turkeys,..... 1 00
George D. Kingsbury, Walpole, best geese,..... 1 00
Upton Burnap, Nelson, next best,..... 50
Justin S. Blake, Keene, best ducks,..... 1 00
William T. Metcalf, Keene, best lot of eggs,..... 50

AGRICULTURAL IMPLEMENTS.

A. R. & H. W. Emerson, Alstead, best plow,..... 2 00

D. W. Bill, Gilsum, best ox yokes,..... 1 00

LEATHER.

H. N. Colston, Walpole, best buggy harness,..... 2 00
Hutchins & Mason, Keene, best pair boots,..... 1 00
G. B. & H. E. Rawson, Gilsum, best calf skins,..... 2 00
A. E. Wilson, East Sullivan, next best,..... 1 00

HATS.

Mrs. Joseph S. Phillips, Roxbury, best p. l.,..... 1 00
A. E. Wilson, Fitzwilliam, next best,..... 50

CLOTHES.

Miss Maynard, Marlboro', silk bed spread,..... 2 00
Mrs. E. C. Fiske, Walpole, knit counterpane,..... 1 00
Mrs. Samuel Woodward, Keene, best flannel, ... 2 00

The committee noticed fine bed spreads exhibited by Mrs. C. C. P. Harris, Mrs. Daniel Ellis, and Mrs. D. Reed, all worthy of premiums.

GLOVES AND MITTENS.

Mrs. Isaiah Gould, Stoddard, best half hose,..... 1 00
Miss E. Bill, Gilsum, next best,..... 50
Maria S. Raymond, Rindge, best woolen mittens,.... 1 00

FANCY ARTICLES.

Mrs. Ingersoll, Keene, three pine cone frames,..... 50
Miss Bascom, Hinsdale, turtle-shaped pin cushions, a gratuity of..... 25

Maria R. Osgood, Keene, imitation "*what not*,"..... 50
Sarah R. Colony, Keene, crochet bonnet, 50 cts., painted table, 50 cts.,..... 1 00
Caroline R. Tilden, Keene, two picture frames,..... 25
Eliza Adams, Keene, three oil paintings,..... 1 00
Sarah E. White, Keene, three leather work frames,.. 50
Catherine Tilden, Keene, "*what not*,"..... 50
Ann Jane Tilden, Keene, two collars,.... 50
Miss Ames, Keene, wrought shirt,..... 1 00
Maria Wilson, Keene, "*what not*,"..... 50
Harriett A. Smart, Walpole, knit collars,..... 50
Matilda M. Kimball, Keene, embroidered handkerchief, 50
Fanny A. Watkins, Walpole, two scarfs,..... 50
Mrs. Bill, Keene, crayon drawing,..... 50
Mrs. Henry Henderson, Keene, embroidered wreath,.. 50
Mrs. E. Poole, Keene, marine mosses,..... 50
Miss Witt and her pupils, Keene, box of needle work, 3 00
Mr. Gould, Stoddard, elderberry wine,..... 1 00
Miss Kemp, Sullivan, crayon drawing—fancy portrait, 1 00
Miss Lucretia Dawes, Keene, specimen of stocking darning,..... 50

MISCELLANEOUS ARTICLES.

The committee on General Miscellanies would report the following premiums:—

Mrs. J. Harvey, Surry, best white bread,..... 1 00
Mrs. Abel W. Miller, Keene, second best white bread, 50
Mrs. Abel W. Miller, Keene, best brown bread,..... 1 00
Mrs. Jane Day, Gilsum, white bread,..... 50
Catherine Flannegan, white bread,..... 50
Mrs. Azel Wilder, Keene, best rye bread,..... 50
Mrs. Z. S. Barstow, Keene, soap,..... 50
E. Russell & Son, lot earthen ware,..... 1 00
Mrs. George Tilden, Keene, case of flowers,..... 1 00
William S. Briggs, Keene, hat tree,..... 50
E. W. Winchester, Keene, fancy furniture,..... 2 00
D. E. Pierce, Keene, three pieces wrought marble,... 2 00
George Tilden, Keene, bookbinding,..... 1 00
A. T. Wilder, Keene, mammoth cake,..... 50
A. S. Kendall, Fitzwilliam, patent leather,..... 2 00
William D. Locke, Fitzwilliam, farm journal,..... 50
John Whittemore, jr., Fitzwilliam, wooden bowls,... 50

Mrs. D. D. Ranney, Keene, one pair morning shoes,.. 50
Miss E. M. Pool, Keene, frame and seed bag,..... 50
Mrs. C. C. P. Harris, Harrisville, rag carpet,..... 1 00
Mrs. D. L. N. Cummings, Swanzey, two pairs embroidery,..... 50
Henry Foster, Keene, work box,..... 40
J. Green, Keene, case of perfumery, medicines, &c.,.. 1 50

FRUITS AND VEGETABLES.

The committee award the premium for best fall apples, not less than one barrel, to Edmund Stone, Swanzey,..... 1 00
For the best specimens of fall apples, whose Porters, Fameuse and Pearmain were remarkably large and fair, to T. M. Edwards, Keene,..... 1 00
Edwin Hosmer, Walpole, two varieties apples,..... 50
A. S. Kendall, Fitzwilliam, Groton foundling apples,. 50
Samuel Woodward, Keene, Groton founding apples,. 50
T. H. Leverett, Keene, for greatest and best varieties, 1 00
Charles Reed, Fitzwilliam, fifteen varietes, very fine, but came in quite late,..... 50

Charles Boies exhibited a basket of fine Porter apples, and Miss Elizabeth E. Tilden some very large Gravenstein.

A. Wright, Keene, for the best pears, the Bartlett and Sickle, the former very fine,..... 1 00
Josiah Bennett, Westmoreland, for Flemish Beauty and White Doyenne,..... 50
George B. Twitchell, Keene, for Dix, very fine specimens and Louise Bonne de Jersey,..... 50
George Tilden, Keene, for the greatest variety of pears,..... 1 00

Mr. Tilden also contributed eleven varieties, not of his own raising, which, to many who had not before seen these varieties, proved highly gratifying.

B. F. Adams exhibited a handsome lot of the Louise Bonne de Jersey, raised on quince, which deserved especial notice.

G. W. Daggett, the president, Westmoreland, for the finest peaches,..... 75

J. D. Gibbs, Jaffrey, peaches,..... 50
Eben Proctor, Alstead, peaches,..... 50
Henry Smith, Keene, peaches,..... 50

S. Dorr, of Westmoreland, exhibited some fine peaches, as also S. Woodward, of Keene.

Charles Whitney, Troy, native grapes, very fine,.... 50

Stewart Hastings exhibited seedling grapes of fine promise.

Charles Reed, quinces,..... 50

Edwin Hosmer, Walpole, exhibited very fine quinces, and deserves a gratuity of fifty cents, if the funds will warrant.

George Tilden, the greatest variety and best kinds of potatoes,..... 1 00
T. H. Leverett, four varieties potato,..... 50
Jonathan Calef, Keene, best Carter potato,..... 50
Timothy A. Bascom, Hinsdale, sweet potatoes,..... 50
A. Craig, Keene, best marrow squashes,..... 50
George Kingsbury, Keene, marrow squashes,..... 50
Seth Wadsworth, Roxbury, marrow squashes,..... 25
J. D. Gibbs, Jaffrey, large squash, 69 pounds,..... 25

Abel Blake, of Keene, exhibited very fine Crook Neck Squashes, and Messer C. Dean, of Keene, exhibited a pumpkin weighing 45¼ pounds.

Jonathan Calef, large watermelon,..... 25
S. L. Whitcomb, Swanzey, early turnip beet,..... 25
Abel Blake, sugar beet,..... 25
Ira Hodskins, Keene, for best lot of carrots,..... 25
George Tilden, sweet corn,..... 25
Edward A. Murphy, Walpole, onions, red and white, 25
T. H. Leverett, for the best exhibition of vegetables,. 1 00

The following reports have been furnished by the Secretary, with the remark that they are all which have come into his possession.

SWINE.

The committee on swine report that there was less competition

than on former years, in the department of the fair particularly assigned to them. There were several cases of entries for premiums where the animals were not exhibited to the committee, owing probably to the weather, which being too bad for hogs or committees to expose themselves to, of course there was no action on the first day. But on the second day, four of the committee presented themselves for the purpose of discharging, in the most impartial manner, the important trust committed to their skill and judgment. Mr. Holland of Walpole not presenting himself, N. O. Hayward of Gilsum was promoted to the honorable distinction of supplying his place. The committee are aware that the importance of the trust reposed in them cannot be fully appreciated by ordinary minds. They were required to select the best, all contingencies considered, from the specimens exhibited for their examination. Not the best of a particular breed, cross or variety, but the best of the *best* breed, and most profitable for rich or poor, good and bad feeders to propagate. Those who are at all conversant in *hogology* know that there is no question more mooted than "Which is the best breed of hogs?" And that the several breeds differ so little, that it would be as difficult to point out their distinctive qualities as it would be to tell the difference between the antiquated political parties, or to tell which were the dirtiest when all had wallowed an equal length of time in the same mire. It was necessary for the committee to settle all these intricate, but to many, important questions. After passing a general inspection, like the reviewing officers in the days of musters, rum and military glory, the committee in a very particular manner examined the portly dimensions of a porcine father, in whose Anglo-Saxon veins flowed a moiety of Suffolk blood. He was owned and exhibited by Mr. John T. Harvey, of Keene, and in consideration of this connexion the committee awarded him the sum of three dollars, their highest mark of distinction.

They next examined a genteel male porker, belonging to Ira Hodskins, of Keene. He was of pure Suffolk blood, faultless in symmetry, trim and neat, and wearing less bristles than an ordinary dandy. The members of the committee who did not

consider him entitled to the first, were prompt in giving him the second position, and awarded Mr. Hodskins the second premium of two dollars.

The committee next examined two well proportioned and fine limbed, half native and half Suffolk sows, belonging to the veteran competitor for premiums, John Lawrence, Esq., of Beech Hill. They awarded the first premium of three dollars on one, and passed by the other. They next took into consideration a portly looking matron, partly Suffolk blood, accompanied by as promising and tidy little company of grunters as are often seen. They belonged to Joshua A. Towne, of Keene, and the committee awarded him the second premium of two dollars on the mother, and the only premium of two dollars on her fine pigs. The third premium was awarded to Azel Wilder, of Keene, on one of two prime sows, seven and a half months old, of the Stickney breed. This breed is rather promising, but their comparative merits have not been fully proved in the county. The committee were divided in their opinion in relation to them. George Carroll, of Keene, exhibited a sow fourteen months old, accompanied by eight pigs seven weeks old. They were of native blood, and did not appear to have been very highly fed. The committee would have considered the whole family entitled to a premium, had there not been finer animals in competition.

The committee thus closed up the business assigned them, not feeling disposed to give preference to any particular breed or cross, farther than is incidental to the awards given above. Mr. Wilson of Swanzey and Mr. Harvey of Marlborough entered swine of different descriptions for premiums, which is presumptive evidence that there are hogs out of Keene, but none were found in the field. We close by expressing the hope that the greatest hogs may ever be found among the swine in Cheshire county.

S. WOODWARD, for the committee.

POULTRY.

There is but little in a name. The dissipating tendency of

the present and past age has robbed them of their original signification, so that *Biddeford* in Maine, and *Hen*niker in New Hampshire are no more famous for *hens* than Keene or Dublin.

Your committee on Poultry would respectfully report, that their inspection of the *fowl* department of the present *cattle* show has been rather pleasant and interesting in many particulars, as may subsequently appear.

In discharging their official duties, they have been politely permitted to *sit*, *standing;* but they are confident that your sense of propriety will not require them, in reporting unnaturally, to *lay* sitting. But they propose to *lay* before you the full litter of their combined judgment, with all due respect to yourselves, and especially to those who, on this occasion, have presented the fine specimens of poultry we have been called to examine, showing conclusively that they, as *fowl* lovers, are truly *chicken-hearted.* Your committee would further say that they have been made aware of the prevalence of a disease in our community known as the hen fever. It is a contagious disease and spreads very rapidly. Do not be alarmed, gentlemen; it is unnecessary. The spasms and shakes of this epidemic affect the purse more than the health of individuals.

The great *nest* of speculation has *eggs* of promise, but it would not be surprising if, in the forthcoming broods, there were many birds of disappointment. But notwithstanding these *fowl* hints there is a *cleaner* aspect to the subject. The beautiful plumage and the lordly tread of the high bloods are impressive objects, and will not fail to command the admiration of the lovers of independent action and variegated splendor. And further still, the delicious egg custards and savory chicken pies are arguments decisive in favor of the tasteful neatness of the feathered bipeds.

While Yankees have a home on these mountains and Thanksgiving makes its annual return, the turkey roost and the chicken fixens are as indispensable as the day itself. Part them never!

But, gentlemen of the quill, a word for you. We notice with sorrow the significant fact that *that* department of the poultry family which for many centuries furnished the implement by which the brotherhood of your fraternity were wont to trace their

profound cogitations on the parchment roll, are but feebly represented in our exhibitions of the present day. Is the *gabbling race* to become extinct? Shall the downy pillow be no more smoothed for the aching head? Must pens of iron and steel record the tender and sorrowful mournings of the sensitive heart? To Rome this bird was sacred, and wrote our own immortal declaration of rights. Its reputed "rhetorical flourishes" of "inalienable rights" flowed from the mind of the draftsman and became tangible language on the parchment before him, by the aid of the quill of a goose. We venerate antiquity, and ardently hope our present domestic and political fowl breeders may not advance backward.

And finally, gentlemen, your committee are much obliged for your patient attention. You have their best wishes for your *fowl* interests. Policy induces them to close their report, for your open countenances indicate some symptoms on your part of that dread and destructive chicken distemper, the *gapes*.

In submitting their report they will with pleasure *foot* their own *bills*.

W. D. LOCKE, for the committee.

MISCELLANEOUS ARTICLES.

The committee upon General Miscellanies have made a report of the awards, and they deem it their duty to notice some articles that had no premiums, but are deserving of honorable mention, and remark farther upon those that did.

The ladies, who delight in "household varieties," furnished your committee with eleven specimens of wheat bread, two of rye, and three of brown. We regret that the ladies of Cheshire county would not have given a greater supply of the "staff of life." Most of the specimens presented, however, were in good *taste;* and yet we presume that improvements might be made in the art of bread making, by attention, labor, and a little of that best of all philosophy, "common sense." Every family in this "land of plenty" has an abundance of what is called bread,

but it is a fact not to be denied that some ladies are incapable of placing before their families bread *uniformly* good, of their own manufacture. And why? Because too many articles enter into its composition. If the simple ingredients of flour, yeast, water and salt (all of which must be good,) *only* were used, we know of no good reason why bread of the best quality would not be produced. And here we would add some remarks of a late writer upon bread making: "The materials which go to form good bread are liable to three fermentations, viz: first, vinous; second, acetous; third, putrefactive. The first makes the bread light, and at this stage the dough should be baked; the second makes it sour; the third totally ruins the mass. Experience and observation will teach the good housewife the very nick of time the bread should find its place in the oven."

The committee may have enlarged too much this subject, beyond what might appear necessary, but as bad bread is making its thousands of dyspeptics, and if not generating, certainly aggravating all the diseases which poor human nature is heir to, they deem it of vital importance. Now, ladies, take these few hints in good part, and contribute liberally in this department at our next annual exhibition.

Mrs. Ann Kimball, of Harrisville, placed upon the table two beautifully wrought rugs.

There were four specimens of penmanship and pen drawing, by J. W. Pierce of Chesterfield. For want of funds, we can only bestow our merited praise.

Mrs. Z. S. Barstow contributed a very fine quality of soap—so nice that it was enough to make one feel cleanly to look at it.

E. Russell & Son, of Dublin, a lot of earthen ware. Whoever may want a superior article will be likely to find it at their establishment.

The case of flowers placed in the hall by Mrs. Geo. Tilden added much to the beauty of the exhibition, and they were enclosed in a manner that they could not be harmed by those who did not understand what was meant by "hands off."

William S. Briggs had upon the centre table metallic coffins,

which were well calculated to answer the purposes for which they were designed.

E. W. Winchester, of Keene, a fine lot of fancy furniture—a complete chamber set, beautiful and chaste enough to grace a bridal room.

The specimen of binding did credit to the establishment from which they came—G. & G. H. Tilden—whose watchword is "progress." The blank book binding and ruling by M. Dean evinced a great advance over former times.

If any of the young men intend to make acquaintance with hymen, they will do well to send the young rogue in time to A. T. Wilder's for the wedding cake. Loaves of size and quality will be found to suit customers.

A. S. Kendall, of Fitzwilliam, six skins of fine looking "patent" leather.

William D. Locke, of Fitzwilliam, laid upon the desk a "farm journal." In bulk it was a small affair, but to every farmer it was of the highest importance. It showed the manner and order in which the gentleman managed his own farm, presenting at once the cost and increase of every field and crop, and various other matters of vital interest to success. Farmers of Cheshire county, "go ye and do likewise," and you will thus learn to stop the small leakages to your purse. "It is the little foxes that eat up the vines."

John Whittemore, of Fitzwilliam, a lot of wooden bowls of first rate materials and of good workmanship.

Mrs. D. D. Ranny showed good taste and a ready use of the needle in a pair of morning shoes; they would tread gracefully upon the rag carpet of Mrs. C. C. P. Harris, of Harrisville. This lady's carpet was superior to anything of the kind your committee ever had the pleasure to examine.

Mrs. D. L. N. Cummings, of Swanzey, two pieces of embroidery, most beautifully wrought. A work-box by Henry L. Foster, of Keene, exhibited good taste and a finished workman. The medicine case of J. Green occupied a conspicuous place; the work was executed by the hand of the gentleman, and was well done, and the economy of its arrangement was good. He

informed the committee that it contained no "quack nostrums," but all the medicines were according to the taste and fancy of the learned faculty.

D. E. Pierce, of Keene, added much to the beauty of the show by those pieces of wrought marble. The stone was of a superior kind, and from our native quarries; the lettering, the bas-reliefs, and the whole workmanship did credit to the establishment of Mr. P., and also to the workmen in his employ. The paper flowers put upon the desk by Miss Esther Barker, of Keene, did not come quite up to Dame Nature's, but were very well done.

The seed bag worked by the ingenious fingers of Miss E. M. Poole, of Keene, we hope will vegetate, and produce an abundance after its kind for our next annual exhibition.

STEWART HASTINGS, for the committee.

CROPS.

At a meeting of the committee on Crops, at the office of the Secretary in Keene, on the 5th day of January, 1854, the following entries were found to have been made for premiums:

By Edmund A. Marsh, of Walpole, for a crop of oats raised on one acre of land.

STATEMENT.

Soil, loam, on a hard-pan subsoil. Previous crop, corn; plowed from five to six inches deep; was plowed and cross-plowed in the early part of April, and sowed in the second week in April; no manure this season; quantity of seed sown, 3 3-4 bushels, nearly, per acre; harvested about August 10th, mostly with the cradle—a few by the roadside and under trees with the sickle; threshed by hand about Sept. 22, and measured on that day; yield on the acre, seventy-eight bushels; weight per bushel, thirty-eight pounds. No extra labor or expense to produce the crop, which was diminished to some extent by the depredations of the grasshoppers. The seed was from oats obtained

from the Patent Office, and are called here Irish oats. The land descended to the south-east, and was somewhat affected by the drouth in June and July. The grain generally was not lodged at all—under some small trees and by the roadside it was somewhat lodged. There were over forty young apple trees on this acre.

Walpole, Dec. 23, 1853.

A sample of the oats being furnished and the statement properly authenticated, the committee award Mr. Marsh the first premium of $3.

By Ebenezer Proctor, of Alstead, for Baldwin apples. A sample of four barrels of this kind of apples was presented, which were beautiful to the eye and luscious to the taste. The committee award him the first premium of $2.

By Elijah Blake, of Keene, for an acre of corn producing 107½ bushels.

STATEMENT.

Last spring I laid out by estimate about three hundred rods of land—the soil of a clayey loam. The autumn previous I carted mud, leaves, &c., into my barn-yard. Of this composition, mixed with different kinds of stock manure, applied twenty-two cart loads, some forty bushels each, to the land, laid in small heaps, and thirty-two loads taken from the barn and hog-yard, in large heaps; when fermented, pitched it over as often as the heat required. The 5th of May, spread the small heaps on the green sward, then plowed the same straight, and shut the furrows smooth with Ruggles & Co.'s improved plows, seven inches deep. Then spread fourteen loads of stable manure on the furrows and harrowed both ways with a light team, which did not harden the ground. The 15th, marked it out one way with a strike, which run the rows straight, five at a time; then furrowed it with a side-hill plow, and marked the other way with the strike, nearly three feet apart each way, making some five thousand hills to the acre. Laid out the manure in the large heaps, and planted of Whitefield, long-eared and Brown corn, seven kernels in each

hill; finished planting about the 22d. The under manure and turf soon began to ferment, which started the corn quick, and it grew rapidly. The second week of June, cultivated it each way with a cultivator, raised a small hill, and thinned out where it grew too thick. The last of June, hoed it again, leaving four stalks in a hill, using neither plow or cultivator. A third hoeing was deemed unnecessary as well as impracticable, so rapid and luxuriant was its growth. The stalks were taken off the 12th of September.

The measurement of the ground and of the corn were properly attested, and the committee regret to be unable to award the first premium for this great crop, on account of a specimen of the corn not being furnished, according to the regulations.

By Lewis Taylor, of Hinsdale, for an acre of wheat.

STATEMENT.

The ground on which I raised the wheat now offered for premium is mostly a sand loam. A few years ago it was an old pasture, so completely bound out and covered with moss that it would not probably sustain two sheep to the acre through the summer. For several years it has been cultivated with corn and oats alternately—receiving every other year about twenty loads of long yard manure to the acre. In the spring of 1852 it received such a dressing, was plowed in, and planted with corn; the corn crop amounted to about thirty-five bushels on one acre and fifteen rods. In September it was cut up by the roots; the ground was plowed and sown with wheat; it was reaped in July and threshed in August—amounting to twenty-eight bushels and four quarts from the one acre and fifteen rods.

I do not present this for premium because it is an extra crop, (for it is only an ordinary one,) but mainly to encourage the farmers of Cheshire county to raise more winter wheat. As near as I can ascertain, there have been raised in town the present season one hundred and eighty bushels of wheat by seven or eight individuals, mostly in our neighborhood. Two thousand

bushels might and ought to be raised in this place annually; but our farmers are afraid to sow it, looking upon it as some exploded humbug, like the raising of sweet potatoes—neither of which are humbugs. Both may be raised to advantage.

Hinsdale, Sept. 27, 1853.

The required sample not being furnished, the committee presume that Mr. Taylor does not expect a premium.

CALEB CARPENTER,
WILLIAM LEBOURVEAU,
SAMUEL ROBINSON,
for the committee.

MERRIMACK.

OFFICERS.

President,

ENOCH COFFIN, Boscawen.

Vice President,

EDMUND WORTH, Fisherville.

Directors,

A. BURBANK, Boscawen;
J. KILBURN, Boscawen;
J. SAWYER, Fisherville;
C. G. B. RYDER, Dunbarton;
D. MORRILL, Canterbury;
B. FARNUM, Concord.

Secretary,

ABIEL ROLFE, Fisherville.

Treasurer.

J. L. COUCH, Boscawen.

HISTORY OF THE SOCIETY.

The present Society was organized Feb. 24, 1824. Its first officers were, Dr. Ebenezer Lerned, *President;* Hon. Hall Burgin, *Vice President;* Maj. Timothy Chandler, *Treasurer;* Hon. Horace Chase, *Secretary;* Capt. Benjamin Pettengill, Artemas Rogers, Esq., Mr. Samuel A. Morrill, Boswell Stevens, Esq., Hon. Isaac Hill, and Mr. Moses P. Grey, *Directors.*

The expressed object of the organization was, "to encourage improvements in agriculture, domestic manufactures, and their auxiliary branches."

During the first years of the operations of the Society, its members were found in a larger number of the towns in the county, and a great proportion of the premiums awarded were received by residents of Loudon, Canterbury, Boscawen, Salisbury, Hopkinton, Henniker, Bradford, &c.

The first anniversary was held in Salisbury, October, 1824, at which there appears to have been a good exhibition of live stock and domestic articles. The first annual address was delivered by Dr. Lerned, President of the Society.

In 1829 the Society voted to offer premiums, to encourage the culture of hemp and silk; and the same year three dollars were awarded to Rev. Dr. Woods of Boscawen, "as the first planter of the mulberry, and the first manufacturer of silk in the county."

In 1824, the Executive Committee were instructed "to petition the next Legislature for a grant of two hundred dollars, being the sum granted by that body to the agricultural societies of the other counties in the State." Whether this sum was ever realized the records do not state. It cannot be doubted, however, that a judicious appropriation by the Legislature to the several societies, would greatly contribute to the prosperity of the agricultural and mechanical interests in the State.

It is true there were societies organized in some of the other counties prior to the date of the organization of this; but we believe no one of them has maintained its visibility as long a period. While other societies have become extinct, and those reorganized now occupy the ground, the Merrimack County Society has held on the even tenor of its way, and has accomplished a good work. It has been sustained by well-tried, practical men, who did not take hold of the plow and then look back; who did not engage in the enterprise as a novelty, but who have ever been ready to put their shoulders to the wheel and help. At times, the number of members has been reduced, but by occasional additions it has been well sustained. In no single instance for thirty years has an anniversary been omitted; which fact shows that the Society has been favored with a band of the right sort of working members. The Society has often been crippled for want of funds—many times members have generously remitted the amount awarded them as premiums, to relieve the treasury. The average amount paid for premiums would be perhaps about $130 per annum; or for the whole time of its operations, about $4,000.

The annual Fairs have been held in Salisbury, Henniker, Concord, East and West Boscawen, Loudon Village, Hopkinton, Canterbury, Pembroke, Dunbarton, Warner, Franklin and Fisherville.

The annual addresses have been delivered by Messrs. E. Lerned, George Kent, Matthew Harvey, Philip Carrigain, Richard Bartlett, Joseph M. Harper, Samuel Fletcher, Dudley S. Palmer, Asa Fowler, Cyrus Barton, Isaac Hill, Anthony Colby, Moses G. Thomas, George W. Nesmith, Simeon B. Little, John Whipple, Nathaniel B. Baker, Levi Bartlett, Josiah Stevens, Asa P. Cate, H. E. Perkins, H. Moody, and James O. Adams.

Essays on different topics have been read by Levi Bartlett, Joseph Pillsbury, Edmund Worth, Simeon B. Little, Isaac Hill, and William Prescott.

The Society has held special meetings, and occasional addresses have been made by Daniel Webster, Mr. Stone of Boston, Levi Bartlett, Chandler E. Potter, and others.

THE FAIR.

The Merrimack Agricultural Society held its annual Fair at Fisherville, on the 27th and 28th of September. The weather was unpropitious, but notwithstanding the rain, a good number of the citizens assembled early the first day. The exhibition of stock was good—there were some very fine working oxen, steers, cows, &c. In the hall the exhibition, though not large, was better than for some of the past years, and was truly encouraging.

In the afternoon, the annual address was delivered by James O. Adams, Esq., of Manchester, whose subject was "English Agriculture," which was listened to with marked attention by a full house. The report of the committee on farms, crops, &c., was read by the Chairman, Mr. Abiel Rolfe, which was an ably written document. The committee were invited to visit a larger number of farms than usual, and found much in their tour to gratify and to encourage, in view of the agricultural prospects of the county.

The second day was very rainy—a good number was in attendance to listen to the reports of the several committees. The plowing match was a splendid affair; a larger number than usual entered as competitors, who performed their task in a workmanlike manner.

PREMIUMS AWARDED.

Enoch Little, Boscawen, best farm, ... $4 00
Jedediah Sanders, Canterbury, second best, ... 3 00
James Marstin, Andover, third best, ... 2 00
Abram Brown, Northfield, best general crops, ... 3 00

David Morrill, jr., Canterbury, second best,.....2 00
I. N. Sawyer, Salisbury, best wheat,.....2 00
John Kilburn, Boscawen, second best,.....1 00
Simeon B. Little, Boscawen, best corn,.....2 00
T. C. Rolfe, Fisherville, second best,.....1 00
Farnum Coffin, Boscawen, best potatoes,.....2 00
Page Twiss, Dunbarton, second best,.....1 00
Garland Calef, Boscawen, best oats,.....2 00
Nahum Blanchard, Canterbury, second best,.....1 00
John Sawyer, Fisherville, best barley, ...2 00
Page Twiss, Dunbarton, best garden,.....3 00
Edmund Worth, Fisherville, second best,.....2 00
A. Burbank, Boscawen, best plowing with horses,.....2 00
Frank Thompson, Fisherville, second best,.....1 00
Calvin Burbank, Boscawen, best plowing with oxen,.....2 00
A. Burbank, Boscawen, second best, ...1 00
Enoch Coffin, Boscawen, third best,.....Diploma.
Azro Burbank, Boscawen, best driver,.....1 00
Harvey Carter, Boscawen, second best,.....Diploma.
John Carter, Boscawen, best plowman,.....1 00
Enoch Coffin, Boscawen, second best,.....Diploma.
Henry Martin, jr., Concord, best team working oxen, not
less than four years,.....2 00
T. C. Rolfe, Fisherville, second best,.....1 00
John Kilburn, Boscawen, best working oxen,.....2 00
Albert G. Dow, Concord, second best,.....1 50
Hiram Farnum, Concord, third best,.....1 00
Harvey Carter, Boscawen, fourth best,.....Diploma.
Arthur Clough, Canterbury, best pair four years old steers,.1 50
Reuben K. Abbot, Concord, second best,.....1 00
A. Burbank, Boscawen, third best, ...Diploma.
Benjamin Farnum, Concord, best pair three years old steers,1 50
Arthur Clough, Canterbury, second best,.....1 00
John P. Farmer, Boscawen, third best,.....Diploma.
Benjamin Farnum, Concord, best pair two years old steers,.1 00
Farnum Coffin, Boscawen, second best,.....Diploma.
Benjamin Farnum, Concord, best pair one year old steers,.1 00
Benjamin Farnum, Concord, best heifers,.....1 00
Nahum Blanchard, Canterbury, second best,.....Diploma.
Laban Morrill, Canterbury, best bull,.....2 00
Benjamin Farnum, Concord, second best,.....1 00
B. F. Dow, Concord, third best, ...Diploma.
Benjamin Farnum, Concord, best milch cow, ...2 00
B. F. Dow, Concord, second best,.....1 50
Garland Calef, Boscawen, best merino buck, ...2 00

John Colby, Canterbury, best native buck,.....2 00
G. Calef, Boscawen, best merino ewes, not less than five,..2 00
E. Worth, Fisherville, best pigs,.....1 50
Nathan Kilburn, Andover, best stallion,.....3 00
Nahum Blanchard, Canterbury, second best,.....2 00
I. N. Sawyer, Salisbury, third best,.....1 00
J. S. Durgin, Fisherville, best trotting horse,.....2 00
Charles Jones, Canterbury, best mare and colt,.....2 00
Hiram Farnum, Concord, second best,.....1 00
Abiel Gerrish, Boscawen, third best,.....Diploma.
Benjamin Farnum, Concord, best colt under four years old,.1 00
Laban Morrill, Canterbury, second best,.....Diploma.
Benjamin Walker, Boscawen, best butter, ...2 00
Joseph Pillsbury, Boscawen, second best,.....1 50
John Kilburn, Boscawen, third best,.....1 00
Garland Calef, Boscawen, fourth best,..... 50
H. H. Gerrish, Boscawen, fifth best, ...Diploma.
Laban Morrill, Canterbury, best cheese,.....2 00
John Kilburn, Boscawen, second best,.....1 00
David Morrill, jr., Canterbury, third best,.....1 00
Benjamin Walker, Boscawen, fourth best,..... 50
Enoch Coffin, Boscawen, best white bread,..... 50
H. H. Gerrish, Boscawen, best brown bread,..... 50
Miss A. A. Worth, Fisherville, best sponge cake,..... 50
G. Calef, Boscawen, best honey,..... 50
Nahum Blanchard, Canterbury, best pair geese,..... 50
Nahum Blanchard, Canterbury, best lot barn-yard fowls,.. 50
Joseph Pillsbury, Boscawen, best potatoes,.....Diploma.
T. C. Rolfe, Fisherville, best trace corn, ...Diploma.
George Little, Boscawen, best peck beets,.....Diploma.
Joseph Pillsbury, Boscawen, best variety pears,.....Diploma.
Nahum Blanchard, Canterbury, best variety water mel-
ons,.....Diploma.
John Kilburn, Boscawen, best peck cranberries,.....Diploma.
T. C. Rolfe, Fisherville, best four pumpkins,.....Diploma.
Hiram Simpson, Fisherville, best four squashes,.....Diploma.
Edmund Worth, Fisherville, best four grapes,.....Diploma.
E. Worth, Fisherville, best specimen peaches,.....Diploma.
David Morrill, jr., Canterbury, best specimen onions,..Diploma.
A. Doe, Concord, best plow, ...Diploma.
Abiel Rolfe, Fisherville, best doors,.....Diploma.
J. B. Rand, Fisherville, best castors,.....1 00
Amsden & Merriam, Fisherville, best lot tin ware,....Diploma.
Arthur Clough, Canterbury, best pair blankets,.....Diploma.
Arthur Clough, Canterbury, best rug,.....Diploma.

Mrs. T. C. Rolfe, Fisherville, best lamp mats,.....Diploma.
Elizabeth Peach, Boscawen, best bed spread,.....Diploma.
Mrs. Phebe S. Harris, Fisherville, best braided rug,..Diploma.
Miss Susan B. Webster, Boscawen, best pair woollen hose, ...Diploma.
Mrs. A. A. Rolfe, Fisherville, best pair woolen socks,..Diploma.
Miss Jane C. Rolfe, Fisherville, best bed quilt,.....Diploma.
Miss M. E. Amsden, Fisherville, best needle work,....Diploma.
Miss Harriet N. Whittemore, Fisherville, best boquet of flowers,.....Diploma.
Miss S. F. Brown, Fisherville, boquet of flowers,.....Diploma.
Miss A. J. Danforth, Fisherville, crayon drawing,....Diploma.
Miss R. A. Danforth, Fisherville, crayon drawing,....Diploma.
Miss Mary A. Simpson, Fisherville, crayon drawing,..Diploma.

SULLIVAN.

OFFICERS.

President.

HENRY HUBBARD, Charlestown.

Directors.

ALVAH SMITH, Lempster;
RUEL DURKEE, Croydon;
JOHN M. GLIDDEN, Charlestown.

Secretary.

C. E. WHEELER, Newport.

Treasurer.

J. H. HIGBEE, Newport.

THE FAIR.

Wednesday, Sept. 28, was assigned for the Fair in Sullivan—to be held in Claremont, and on that day, under ordinary circumstances could have been seen a splendid show, especially of neat stock. But the violent storm commencing the day previous and continuing with increased severity through the whole of Wednesday, entirely broke up the Fair. Nothing but a few working oxen were presented. Under these circumstances, it was deemed best by the members of the Society to adjourn until October 12, which proposition was concurred in with great unanimity.

Governor Hubbard made a brief but very eloquent speech in which he manifested all the enthusiasm of his early years combined with the good sense of his age. He spoke principally in favor of State aid to Agricultural Societies and recommended the adoption of the Massachusetts system. Farmers should awake to their own interests and when it was within their power, as it always is in New Hampshire, to control the matter, to have a regard first and always to the great and all important interests of agriculture. As an old man who had long lived among them and toiled for the advancement of the State, as one soon to meet with them no more, he besought the farmers of the county to regard their occupation as the most honorable, and by careful cultivation, by investigation and by the adoption of a liberal policy in relation to agriculture, to make it the most profitable, the most independent, the most exalted of all pursuits.

On the day to which the postponement was made, there was a good exhibition. Some of the best stock of the county was on the ground. The plowing was done in a manner more than usually acceptable, and manœuvring of the numerous pairs of working cattle gave evidence of superior training. The address was delivered by James O. Adams, Esq., of Manchester.

PREMIUMS AWARDED.

Franklin Smith, Langdon, best specimen of flax,.... 1 00
Moody Dustin, Claremont, best four pumpkins,..... 50
Danford Rice, Claremont, best peck onions,..... 50
David Dodge, Claremont, best peck potatoes,..... 50
Solon C. Grannis, Claremont, best peck beans,..... 50
Solon C. Grannis, Claremont, best peck peas,..... 50
Charles F. Long, Claremont, best peck beets,..... 50
Francis Long, Claremont, four watermelons,..... 50
Samuel K. Wright, Newport, best variety apples,.... 1 00
L. B. Grannis, Claremont, best peaches,.....Diploma
Thomas Sanford, Claremont, best quinces,.....Diploma
P. C. Freeman, Claremont, best grapes,.....Diploma
A. Saunders, Windsor, Vt., best horse rake,.....Diploma
Chester Pike, Cornish, best stallion,..... 5 00
L. N. Barnard, Cornish, second best,..... 3 00
Forest Freeman, Cornish, best brood mare,..... 2 00
Nath'l W. Brown, Newport, second best,..... 2 00
Chester Pike, Cornish best gelding horse,..... 3 00
Elihu C. Marvin, Croydon, second best,..... 2 00
Archibald Atherton, Claremont, best three years old colt,..... 2 00
John Bailey, Unity, second best,..... 1 00
Ira Colby, Claremont, best two years old colt,..... 2 00
Moody Dustin, Claremont, second best,..... 1 00
C. B. Fitch, Claremont, superior two years old colt, Diploma
Orin Smith, Charlestown, best yearling colt,..... 2 00
Horace Dean, Claremont, second best,..... 1 00
Levi Cowles, Claremont, superior yearling colt,...Diploma
Richard Hubbard Charlestown, best pair match horses, 3 00
Siloam S. Wilcox, Newport, second best,..... 2 00
Cyrus K. Fletcher, Croydon, best three years old bull, 5 00
Abiel W. Fairbanks, Cornish, second best,..... 3 00
Norman Hibbard, Grantham, double premium, best two years old bull,..... 8 00
John S. Walker, Claremont, second best,..... 3 00
Adam Dickey, Claremont, best yearling,..... 2 00
Robert Elwell, Langdon, double premium, second best, 2 00
Danford Rice, Claremont, best two years old heifer,.. 2 00
Ira Perry, Charlestown, best yearling heifer,..... 2 00
Danford Rice, Claremont, best heifer calf,..... 1 00
Robert Elwell, Langdon, double premium, best pair working oxen,.....10 00

George M. Dickinson, Charlestown, second best,..... 4 00
Robert Elwell, Langdon, double premium, third best, 6 00
Samuel L. Slader, Langdon, fourth best,..... 4 00
Erastus G. Perkins, Unity, best pair four years old oxen,..... 4 00
Wm. Holden, Langdon, double premium, second best, 5 00
Erastus O. Walker, Charlestown, third best,..... 2 00
Town of Langdon, double premium, best town team, 10 00
F. Smith, Langdon, best pair three years old steers,.. 2 00
Isaac Hubbard, Claremont, second best,..... 1 00
F. Smith, Langdon, best pair two years old steers,.. 2 00
Ezra J. Glidden, Unity, second best,..... 1 00
Ezra J. Glidden, Unity, best pair yearling steers,..... 2 00
Ira Perry, Charlestown, second best,..... 1 00
Alvah Smith, Lempster, best pair steer calves,..... 2 00
Hiram Smith, Unity, second best,..... 1 00
Ezra J. Glidden, Unity, best pair fat oxen,..... 5 00
James Sperry, Claremont, second best,..... 4 00
M. D. Proctor, Claremont, third best, ... 3 00
William R. Kimball, Cornish, best fat cow,..... 2 00
Wm. R. Kimball, Cornish, second best,..... 1 00
J. B. Wellman, Cornish, best fine wool buck,..... 2 00
Charles N. Goss, Claremont, second best,..... 1 00
Joseph F. Moore, Acworth, double premium, best grade buck,..... 4 00
Chas. N. Goss, Claremont, best five lambs,..... 2 00
Abram Rogers, Claremont, best boar,..... 2 00
Noah Dean, Claremont, second best,..... 1 00
F. Stoddard, Claremont, best sow and pigs,..... 3 00
Franklin Smith, Langdon, second best,..... 2 00
Jas. P. Upham, Claremont, best plowing with horses, 2 00
Charles N. Goss, Claremont, second best,..... 1 00
Alpheus Perry, Charlestown, best plowing with oxen, 2 00
John M. Glidden, Charlestown, second best,..... 1 00
Jonathan Reed Claremont, best butter,..... 2 00
T. W. Alden, Claremont, second best,..... 1 00
Henry Colby, Claremont, best cheese,..... 2 00
E. Ainsworth, Claremont, second best,..... 1 00
Danford Rice, Claremont, best honey,..... 2 00
Z. Peck, Acworth, best maple sugar,..... 2 00
E. B. Stevens, Claremont, second best,..... 1 00
Charles E. Wheeler, Newport, best specimen tailor's work,..... 2 00
Pond & Co., Claremont, best hat,.....Diploma.
E. J. Bowen, Claremont, best harness,..... 2 00

A. Smith & Sons, Lempster, best calf skins,.....Diploma.
James H. Hubbard, Newport, best bedstead,.....Diploma.
Claremont Cutlery Co., best cutlery,..... 2 00
Schuyler E. Smith, Newport, second best,.....Diploma.
Nichols E. Sargent, Acworth, best blacksmithing, Diploma.
David Harris, Newport, buggy wagon and road sulkey, from the manufactory of J. S. Steele & Co., Saxton's River, Vt.,.....Diploma.
Mrs. Gile Hamlin, Charlestown, best bread,.....Diploma.
Wm. Howard, Claremont, best pair sewed boots,.... 2 00
Wm. Howard, Claremont, best pair pegged boots, Diploma.
A. Smith & Sons, Lempster, best pair thick boots,....1 00
A. Smith & Sons, Lempster, best overshoes,.....Diploma.
Mrs. D. Buss, Acworth, best yarn rug,..... 50
Miss Julia E. Berrett, Claremont, best rag rug,...Diploma.
Mrs. Amos Hitchcock, Claremont, best braided rug,.. 50
Mrs. Wm. R. Kimball, Cornish, second best,.....Diploma.
Sanford & Rossiter, Claremont, best cassimere,..... 1 00
Mrs. Franklin Smith, Langdon, best frocking,..... 1 00
Mrs. Adam Dickey, Claremont, best tow cloth,..... 1 00
Mrs. H. Metcalf, Charlestown, best woolen socks,.Diploma.
Miss Harriet Haywood, Acworth, best woolen hose, Diploma.
A. C. Lamson, Claremont, best wool gloves and mittens, ...Diploma.
Mrs. N. G. Freeman, Cornish, best darning and patching,..... 1 00
Mrs. Arvin Bartholomew, Plainfield, best worsted work, ... 1 00
Mrs. James P. Upham, Claremont, second best,...Diploma.
Miss Abbie Mansur, Claremont, third best, ...Diploma.
Miss Harriet N. Noyes, Claremont, best silk hat,..Diploma.
Miss Parmela Hurd, Newport, best dress cap,....Diploma.
P. G. Fisher, Claremont, case of millinery,.....Diploma.
Miss H. M. Howard, Claremont, painting,.....Diploma.
Mrs. J. E. Wilcox, Newport, painting,.....Diploma.
Miss H. M. Howard, Claremont, artificial fruit,...Diploma.
Mrs. J. E. Wilcox, Newport, sea moss,.....Diploma.
Miss S. J. Maynard, Claremont, painting,.....Diploma.
Miss S. J. Maynard, Claremont, sofa pillow,.....Diploma.
Benj. F. Haven, Newport, best hames,.....Diploma.
Schuyler E. Smith, second best,.....Diploma.
Danford Rice, Claremont, seed corn,.....Diploma.
D. D. Marsh, Croydon, seed corn, ...Diploma.
Horace Hubbard, Claremont, seed corn,.....Diploma.
Loami Severance, Claremont, pop corn,.....Diploma.
James Sargent, Shelburne Falls, Ms. apple pearer, Diploma.

CONNECTICUT RIVER VALLEY, (GRAFTON.)

OFFICERS.

President,

ASAHEL SMITH, Hanover.

Vice Presidents,

DANIEL STICKNEY, Lebanon;
ALPHEUS CONANT, Enfield;
SAMUEL PATTEE, Canaan;
O. K. PORTER, Lyme;
JOEL RICHARDSON, Orford;
A. P. GOULD, Piermont;
J. V. BEANE, Haverhill;
BENJAMIN R. NORRIS, Dorchester.

Directors,

HORACE HATCH, ZUAR ELDRIDGE, Lebanon;
CONVERSE GOODHUE, EDWIN PERLEY, Enfield;
SAMUEL PATTEE, CALEB BLODGETT, Canaan;
ASHBEL SMITH, JOSEPH PINNEO, Hanover;
SHUBAEL DIMICK, Lyme;
PARKER WRIGHT, Orford;
MICAIAH EMERSON, Piermont;
HENRY MERRILL, H. W. SWASEY, Haverhill;
JONATHAN SAWYER, Dorchester.

Corresponding Secretary,

THOMAS R. CROSBY, Hanover.

Recording Secretary,

EPHRAIM K. PORTER, Lyme.

Treasurer,

THOMAS PERKINS, Lyme.

THE FAIR.

We make up the report of the Fair from the account published in one of the county papers, as we have been obliged to do in other counties.

The sixth annual Fair of the Society was held at Lebanon on the 21st and 22d of September. The interest no less than the enthusiasm of the first day were affected much by the violent equinoctial storm then prevailing, which prevented the attendance of many exhibitors with their stock, as also a majority of the public. With commendable punctuality, however, the committee of arrangements succeeded, despite the weather, in assorting and arranging whatever articles were presented for exhibition, so that by noon the gates were thrown open to visitors. In order to meet all possible wants for space, a large tent was erected on the common, in which were placed farming utensils, mechanical works and the larger vegetables.

It was observed that the display within as regards staple products was exceedingly meagre in *quantity*, though excellent enough in *quality*, for it ill comported with the provisions made for its accommodation, and showed more unoccupied space than was either pleasant or necessary. One lot of superior seed corn, exhibited by Mr. Dana, of West Lebanon, was the only specimen of the kind of grain which we saw. It is passing strange that from all the towns constituting the Society, not another specimen should have been furnished of so important an article as corn; and though we would fain believe that the weather interfered with the transportation of articles from the more distant towns, we are still loth to charge this wholesale omission solely to that account. In fact there was a most singular, an almost studied absence we might say, of the cereal grains, and inasmuch as they everywhere, from the pole to the equator, form the chief

basis of human food, and take precedence over all other organisms, whether animal or vegetable, in point of nutriment, we do not think their importance should ever be underrated or overlooked by farmers. Bating these few ears of corn above alluded to, there was no wheat—no buckwheat—no rye—no domestic flour to be seen!

A few beautiful squashes, of the variety known by the name of India, attracted much attention, while there were some pretty fair representatives of the striped kind; but we sadly missed our old familiar friends, the winter crook-necks, whom we were wont in the olden time to see hanging round every farmer's chimney. That is a mistaken judgment surely which has supplanted the worthy and excellent crook-neck by the tough, fibrous, leathery mammoth squash of the present day. The crook-neck is at once the hardiest, sweetest and most easily preserved of any squash, and we hope to see its culture revived. Some fine potatoes, mammoth beets, white beans, onions, carrots and parsnips complete the catalogue of garden vegetables.

Mr. Dana of West Lebanon had one of his newly improved cultivators on exhibition, for which he has lately applied for a patent. His improvement consists in a pair of movable wings, whose office it is to smooth down the loose earth as it passes from the teeth under them. By these means no subsequent hoeing is needed, as in the ordinary kind, while to accommodate the width of different rows, these wings are made to play upon an iron segment, thus giving them the power of extension or retraction at the will of the operator. This cultivator will work up six acres in a day, equal to the labor of twelve men. Mr. Harvey Murch exhibited his patent mop-heads, which are to housekeepers certainly a very useful improvement upon the old-fashioned screw heads. The Messrs. Buck had one of their celebrated morticing machines present, but the larger machinery always suffers a disadvantage when standing still. The beauty of their mechanism is never inquired into, apart from the results of its operation, by the public, unless they are seen in motion, when the studied adaptation of all their parts to the purpose required, and their clean, harmonious workings throughout never fail to interest the

beholder. There was a beautiful display of wagons from the factory of Thompson & Jones, such as would do credit to any establishment. We have never seen more thoroughly built or better trimmed vehicles than these. Some harnesses, presented by E. B. Chadwick, of Hanover, and Dutton & McFee, of Lebanon, were particularly nice, as also a patent rotary morticing machine for making blinds, by D. M. Cummings, of North Enfield.

The mechanics of the county did themselves infinite credit on this occasion, and we trust they will not hesitate to exhibit their works whenever an opportunity is afforded, as they need never feel otherwise than proud of them.

Seldom have we seen a more pleasing sight than that which greeted our entrance in the Town Hall. On either hand the horticultural display was most refreshing as well as instructive. Pears, plums, grapes, the luscious natives of temperate clime and a generous earth, wrung by careful, patient culture from out the stern soil and beneath the forbidding skies of New Hampshire. Was this not a triumph of labor, and the best commentary on scientific progressive agriculture that could be furnished? For many years, orcharding has we fear been among the least of the concerns of our farmers. Satisfied with the many varieties of native fruit, and believing in the general aspersion of soil and climate with which the world abroad has usually dismissed its enquiries about our State, they refrained from attempting that more general culture which subsequent experience now proves to them is entirely feasible. It is true that we live beneath an inclement sky and on a flinty soil; our climate, too, is severe, excessive, and of almost arctic rigor, but man is everywhere the type of the soil he inhabits, and the New Hampshire farmer derives from the very rudeness of his native earth that hardy character which best fits him for its subjugation.

It was pleasant indeed to see how perseverance had overcome natural obstacles and wrought wondrous fruits. A young nursery on the north slope of Mount Sport, reared by Mr. Durkee, we believe, afforded some of the finest variety of plums. Mr. Mann of Orford presented eighteen varieties; among these the

first we noticed were the Manning Long Blue and the Lombard. He had also some very fine imperial Gages and egg plums. Mr. Eldridge of Lebanon had also some good specimens of this fruit, but owing to the very dry summer we had, most of the stone fruit matured unusually early, so that the finest specimens could not be preserved to this time. Of pears there were but few presented; one small dish of undersized Bartletts, and some fair looking Flemish Beauties, were all that we noticed. The apples, as usual, excelled all other fruits in variety and size. Some beautiful looking specimens of the Phillips and Thomas apple, grown by Mr. Z. Eldridge; of the Hubbard Russet, by Mr. D. Stickney, both of Lebanon; of the New York Greening and Blue Pearmain, by Mr. Mann of Orford; of the Maiden's Blush and Northern Spy, by O. S. Ingalls of Hanover, attracted much attention. There were some mammoth red sweet apples, not labelled, of extraordinary size; one of these exceeded a foot in circumference. The display of fruit was very creditable to our farmers, and a theme of general commendation. Those visitors from abroad who honored the fair by their presence will carry home with them better impressions of our agriculture than they probably ever before cherished, and our neighbors will soon have to look to their laurels, for we are pressing on their heels very closely.

The domestic manufactures formed no insignificant portion of the exhibition, and afforded the best text from which to preach of the qualities of a New England fireside. There were rugs, mats, carpets, bedquilts and warm hose, all deftly woven and curiously wrought in every possible color and tint. Each spoke a volume for home comforts and associations, for each in itself was a labor of love wrought by kind hands and warm hearts discharging the pious offices of maternity. And how different from the cold, soulless wares of the shop! In the ornamental and fancy needle work departments, our young ladies, for we presume they were the principal artificers, displayed an ingenuity and proficiency no wise behind that of any of their sisterhood. The crayon drawings were all excellent, the embroidered chair and stool covers worthy the loom of Penelope, and some new arts

hitherto unknown in our midst were for the first time exhibited. We allude to the beautiful specimens of wax fruit, and to some picture frames made of leather, both which objects elicited universal admiration. The ladies are always zealous laborers in whatever cause embarked, but experience has long since taught us that in the matter of fairs they are particularly ambitious and never to be excelled.

There was but little cheese or butter presented; such as appeared was, however, of the first quality. Honey was also scarce.

Seldom has a better show of working oxen been made than on this occasion, considering the long drought which visited us so severely, and the poor condition of the pastures, it was remarkable to notice the sleek appearance of the cattle. The exact number present we did not ascertain, nor all the towns from which they came, as many were merely labelled with the name of the owner and the number on the Secretary's book. In this connection we deem it proper to remark that there was much carelessness exhibited by the owners of articles in the matter of properly labelling them.

Of young stock there was a great scarcity. We noticed a pair of milk-white twin steer calves of the short horn Durham breed, that made a very unique appearance. They were presented by George W. Gallup of Lebanon, and were the only ones we saw. Mr. Charles Gates exhibited some very fine milch cows, all in prime order.

The bulls made quite a show, and were all good looking creatures of their kind. An imported Durham, exhibited by Mr. Balch, was the monarch of the herd. There were also some half-blooded yearlings of the same breed, that showed good keeping as well as good blood.

We never saw so few good horses before, and one stallion colt, presented by T. Conant of Lyme, was all that deserved mention.

Of pigs and sheep there were a goodly number, though the varieties were few.

At three o'clock in the afternoon the Society repaired to the

large tent and listened to the address delivered by the Rev. Mr. Comings.

Then came the trotting. Only two horses were entered, and the course being in bad condition, and thronged with volunteers, they had not a fair chance. E. N. Huntington's horse, of Lebanon, made the best time.

PREMIUMS AND REPORTS.

ORCHARDS AND NURSERIES.

Asaph Mann, Orford, best plum orchard,.....$3 00
J. H. Durkee, Lebanon, second best,.....1 50

FRUIT.

John Hebard, Lebanon, best variety native apples, ...2 00
Thomas J. Colby, Lebanon, best variety grafted sweet apples, ... 50
Asaph Mann, Orford, best variety grafted sour apples,.... 50
O. L. Stearns, Lebanon, best variety native pears,.....1 00
Enoch Freeman, Lebanon, best half peck grafted pears,... 50
J. H. Durkee, Lebanon, best variety plums,..... 50
Wm. Howard, Orford, best lot grapes,..... 50

VEGETABLES.

Asaph Mann, Orford, best peck onions,..... 50
Benjamin Colburn, Lebanon, best peck beets,..... 50
John Hebard, Lebanon, best peck potatoes, ... 50
Parker Cole, Lebanon, best peck carrots, ... 50
C. H. Lovejoy, Hanover, best peck peas, ... 50
Joel Baker, Lebanon, best half peck tomatoes, ... 50
O. S. Ingalls, Hanover, best five squashes,..... 50
J. H. Durkee, Lebanon, best five water melons,..... 50
John Hebard, Lebanon, best six cabbages,..... 50

John Hebard, Lebanon, best peck beans,..... 50
Seth Blodgett, Lebanon, best five pumpkins,..... 50

AGRICULTURAL IMPLEMENTS.

The undersigned, committee on Agricultural Implements, have examined Dana's improved cultivator, and report in favor of awarding C. H. Dana a premium of $1. We consider the improvement made by Mr. Dana a very valuable one. The invention has been thoroughly tested by the inventor, and found to be a great labor saving contrivance. It is very simple in construction, cheap, and can be easily attached to the common cultivator. It is claimed by the inventor that this machine will do the work of twelve men, with a horse, on favorable ground, its object being to dispense entirely with the hoe, on mellow soil, free from stones and other obstructions.

J. Dunklee, Lebanon, best ox yoke,.....$2 00
Lyman Greenough, Lebanon, best ox cart,..... 2 00

N. DUDLEY, for the committee.

HOUSEHOLD MANUFACTURES—First Class.

The committee regret that they are obliged to report a much smaller number of articles as coming under their inspection than has usually been presented at the Fairs of this Society, and hope that on the next occasion of the kind a greater variety will be offered, being certain as we are that there can be made by members of this Society a show of household manufactures very creditable to themselves and of interest to others.

Of woolen frocking, only one piece was in, and that, though very fair, the committee do not consider entitled to a premium, not being "highly meritorious."

Woolen flannel—To E. Gile, Enfield, is awarded a premium of $1, for an excellent piece, twenty-five yards, of white twilled flannel, worthy of great commendation.

J. Gustin, Lebanon, best ten yards rag carpeting,.....1 00

Best yarn rug—none were presented coming strictly under this head, but for a beautiful and large sized chenile rug, made of the smallest kind of old rags, made by Mrs. E. Garland, the committee award a premium of $1. 00

Mrs. S. Goodhue, best braided rug, ...1 00

Many others are worthy of especial notice, some being but slightly inferior to the best.

I. O. DEWEY & LADY, for the committee.

SECOND CLASS.

Miss E. T. Plastridge, Lebanon, best pair silk hose,..... 50
Miss Delia Aspinwall, Lebanon, best pair ladies' wool hose,. 25
Mrs. Wm. Durkee, Lebanon, best pair ladies' linen hose,.. 25
Mrs. S. Waterman, Lebanon, best pair woolen gloves, ... 25
Mrs. Silas Dutton, Enfield, best woolen mittens, ... 25
Mrs. Isaac Morse, Haverhill, best pair drawers, ...1 00
Mrs. Seth Blodgett, Lebanon, best woolen blankets, ...1 00
Mrs. Isaac Morse, Haverhill, best gent's shirts,..... 50
Mrs. Elizabeth Epes Carter, Hanover, aged 89, best counterpane, knit in one hundred and twenty-seven different figures,.....1 00
Mrs. Dr. T. P. Hill, Hanover, second best,..... 50
Mrs. George Billings, Lebanon, best bed quilt,.....1 00
Mrs. H. B. F. Dewey, Lebanon, second best,..... 50
Mrs. Caleb Plastridge, Lebanon. best netting and sewing silk, ... 50
Mrs. Caleb Plastridge, Lebanon, best pair ladies' mitts,... 25
Mrs. Wm. Durkee, Lebanon, best linen towelling,.....1 00

E. P. LISCOMB, for the committee.

PAINTING, DRAWING AND ORNAMENTAL NEEDLE WORK.

Miss Elizabeth Hough, Lebanon, best oil painting,.....1 00
Miss Elizabeth Hough, Lebanon, best crayon,.....1 00
Miss E. E. Ingalls, Hanover, best monochromatic, ...1 00

Mrs. Guernsey, Lebanon, best painting, not entered,.....1 00
Mrs. M. Carter, Hanover, best embroidered lamp mat,....1 00
Miss Rhoda Blaisdell, Lebanon, best wrought handkerchief, 1 00
Mrs. Dr. Crosby, Hanover, best crotchet scarf,.....1 00
Mrs. Rev. C. A. Downs, Lebanon, best wrought blanket,..1 00
Mrs. Wm. Durkee, Lebanon, best chair tidy,.....1 00

MANUFACTURED GOODS.

Your committee have attended to their duties and submit the following report:—

A. Conant, North Enfield, best piece woolen flannel,.....1 00
A. Conant, North Enfield, best piece cassimere, ...1 00

ABEL LOW, Jr., for the committee.

MECHANIC ARTS—First Class.

The committee on Mechanic Arts, first class, having attended to the duties assigned them, beg leave to report. The number of articles entered is small; of course the duties of the committee are limited.

A morticing machine for morticing blinds, entered by D. M. Cummings, for want of some one to explain, they were unable to judge of its merits.

A small pair of blinds, entered by the same, though neatly made, we think possess no special merit.

Two doors of different models, both very perfect in material and workmanship, entered by Sturtevant & Cole, Lebanon, to which we award the premium of $1 00.

Two specimens of blinds, entered by the same, were very creditable to the manufacturers, but not entitled to a premium.

Two different models of sashes, very perfect, and entitled to the premium of $1 00.

A churn was entered by H. H. Richardson, which was very good, but nothing more than is in common use.

Five axe helves, entered by E. Parker, very smooth and neat-

ly made, but we are not authorized to award a premium for such articles.

An axe and helve was entered by the same, which we think are no better than ought to be found in every farmer's wood-shed, and ought to be ground at that.

All which is respectfully submitted.

URI CHANDLER, for the committee.

Second Class.

The committee report as follows:

E. B. Chadwick, Hanover, harness, ... 2 00
Caleb Foster, Lebanon, three sides upper leather, ... 50
Thompson & Jones, Lebanon, single wagon, ... 2 00
R. C. Cambridge, Enfield, bedstead, ... 1 00
D. F. Rowell, Lebanon, imitation of painting, in graining and marble, ... 2 00
Shubael Dimick, Lyme, best work in marble, ... 2 00
Shubael Dimick, Lyme, best stone cutting, ... 2 00

There were few articles presented; but those presented were good specimens of workmanship, and creditable to the makers. The wagons presented by Messrs. Thompson & Jones showed good improvement in style and finish. The specimens of marble, grainings, and fancy paintings, the committee were unanimous in recommending as a specimen of good taste and finish by D. F. Rowell. The marble and granite work, presented by Shubael Dimick, was a good specimen of work in that department, and highly meritorious. The leather presented by Caleb Foster, and the harnesses presented by F. D. Slade, E. B. Chadwick, and Dutton & McFee, showed improvement in workmanship and in the quality of stock used.

All which is respectfully submitted.

WILLIAM TENNEY, for the committee.

DAIRY.

Aruna Hall, Lebanon, best cheese,.....3 00
O. L. Stearns, Lebanon, second best,.....2 00
Mrs. Asa Huntington, Hanover, third best,.....1 00
Isaac Morse, Haverhill, best butter,.....3 00
F. D. Slade, Hanover, second best,.....2 00
Samuel T. Slade, Hanover, third best,.....1 00

SUGAR AND HONEY.

There were but few specimens of honey to be examined. Your committee were unanimous in awarding Ziba Hamilton, Lebanon, the first premium, $1 00; A. B. Closson, Hanover, the second, 0 50. Sugar was wanting.

L. C. BEAN, for the committee.

WORKING OXEN.

There were eighteen pairs of working oxen presented for premiums. Five pairs of them were four years old, fine and creditable to the farmers of the Connecticut river valley. But as 4-year olds can hardly be expected to compete with older oxen, your committee thought it advisable to request that a separate department be assigned for them in the future. Your committee were not a little tried, and found it somewhat difficult to discriminate, in assigning the premiums. Several of them, (seven, we think,) were hitched to the loaded drag, and then the skill of the driver as a teamster was tested, which in some instances was rather *green*, and if we compare the times with those of our own boyhood, we find many a man, (and boy, too!) rather poor teamsters.

In our estimate of them we give the first premium to Roger Wood, Lebanon, for a fine pair of large red oxen, five years old, that when tried on the drag did not have the *cheer*, but which at a subsequent trial by one of the committee, that showed a good teamster was of importance—they showed that they had the

wherewith to do good work, and were entitled to the first premium, $6 00.

The second to A. P. Balch, Hanover, $4 00.

The third to William Durkee, Lebanon—a pair which showed their training at the loaded drag, as well as that of the driver, $2 00. ASAHEL SMITH, for the committee.

STEERS.

Your committee regret that more steers were not on exhibition for premium. We find, however, one prime matched pair, 3 years old, that do credit to the Society, and particularly to A. P. Balch, of Hanover, their owner, whom we award the first premium, $3 00.

To A. B. Closson, of Hanover, the second premium, $2 00.

Two pairs only of yearlings exhibited. In accordance with the usages of this Society, we find one pair only sufficiently meritorious for any premium, and those the property of E. Aspinwall; we award the second premium, 50 cents.

Your committee would however beg leave to suggest for the consideration of the Society, the propriety of awarding premiums for the best articles or animal exhibited, without regard to the height of merit, in order to excite those who have good animals or articles, to exhibit them, thereby doing away this frequent regret of meagre exhibition.

Respectfully submitted.

HARRIS ALLEN, for the committee.

COWS AND HEIFERS.

The committee on Cows and Heifers award the first premium on cows to F. D. Slade, Hanover, $3 00. The second to S. D. Sleighton, Lebanon, $2 00. The third to D. D. C. Hardy, Lebanon, $1 00.

Best 2-year old heifer, E. Aspinwall, Lebanon, $2 00.

Best yearling heifer, A. P. Balch, Hanover, $1 00.

Enoch Freeman exhibited the best yearling heifer, but too late to have it entered. They recommend that he is entitled to a premium; $1 00 was awarded.

F. JOSSELYN, Jr., for the committee.

FAT CATTLE, BULLS AND CALVES.

Daniel Hinkley, Lebanon, best bull exhibited, second premium, ... $5 00
Daniel Bosworth, Lebanon, second best, third premium, ... 2 00
S. D. Sleighton, Lebanon, best bull calf, ... 1 00
F. D. Slade, Hanover, best heifer calf, ... 75

SHEEP.

The committee having attended to the duties assigned them, submit the following report:

A. B. Closson, Hanover, best fat sheep, ... $1 00
Zuar Eldridge, Lebanon, best buck, ... 5 00
Richard Buswell, Lebanon, second best, ... 2 00
Enoch Freeman, best five ewes, ... 2 00
Ephraim Wood, Lebanon, second best, ... 1 00
Fitch Loomer, Lebanon, best five lambs, ... 2 00
Ephraim Wood, Lebanon, second best, ... 1 00

WM. COLE, for the committee.

SWINE.

Your committee have attended to the duty assigned them, and report that they have awarded for best sow and pigs, Richard Buswell, Lebanon, $1 00. Best shoat, E. Blaisdell, Lebanon, $1 00.

ASAPH MANN, for the committee.

STALLIONS, MARES AND COLTS.

The committee on Stallions, Mares and Colts, submit the fol-

lowing report: We are of opinion that there has been no stallion offered of sufficient merit to be entitled to the first premium, but have awarded the second premium to A. P. Balch, Hanover, $5.

H. R. Campbell, Lebanon, best breeding mare and colt,..$5 00
D. D. C. Hardy, Lebanon, second best,.....2 00
R. Gates, Lebanon, best 3-year old gelding colt,.....2 00
H. Hatch, Lebanon, best 2-year old mare colt,.....1 00
John Hebard, Lebanon, best yearling colt,.....1 00

R. W. CURRIER, for the committee.

MATCHED AND SINGLE HORSES.

The committee on Matched and Single Horses have attended to the duty assigned them, and report as follows:

J. E. Woodbury, Orford, best matched horses,.....$3 00
A. P. Balch, Hanover, best gelding, ...2 00

PROSPER MILLER, for the committee.

TROTTING ON THE COURSE.

The committee on Trotting find two horses entered for the premium; one by E. N. Huntington, the other by M. R. Spalding; but Mr. Spalding's horse being a racker, was not accepted by Mr. Huntington, which left Mr. Huntington's horse without a competitor. Mr. Huntington's horse performed a feat of four courses with the following result: The first course in 58 seconds; the second in 55 seconds; the third in 50 seconds; the fourth in 47 seconds;—trotting 373 rods in 3 minutes and 30 seconds. We regret that Mr. Huntington's horse had no competitor. Still, it being our opinion that his horse, by his good performance, won for himself a reputation for speed highly creditable, we therefore, (if proper under the circumstances,) award him the premium, $5 00.

DANIEL STICKNEY, for the committee.

POULTRY.

Your committee have examined the fowls and found them small. Of geese, only one lot, not worthy of attention. Of ducks, one fine lot belonging to F. Durkee, we thought worthy of the premium, 50 cents.

One fine lot of fowls, Shanghai, belonging to Ephraim Wood, of Lebanon, we think worthy of the premium, 50 cents.

CARLOS MANN, for the committee.

PLOWING.

The committee on Plowing report as follows: The competitors on plowing with oxen were T. J. Colby of Enfield and D. D. Hardy of Lebanon. Each team was driven by its owner, and plowed its eighth of an acre in fifteen minutes. Mr. Hardy used the Michigan plow, which was held by Charles Gates. The plowing was well done. The ground was left light and in good condition for a crop. The furrow slices were about twelve inches wide and eight inches deep. They were straight, even and well turned. The oxen did not work at all well, owing, in a measure, to having a bad yoke. In the opinion of your committee, they did not deserve so severe a mauling as they received.

Mr. Colby used a Prouty & Mears' plow, which was undoubtedly a good one in its day, but now too much worn to do its work perfectly. It was held by Mr. Follansbee. The ground was tolerably well plowed. The furrows were about the same width and depth as by Mr. Hardy's team, but not so well turned. The oxen were driven just as oxen should be driven, only a little too fast. They did their work handsomely.

The competitors with horses were Charles Gates and Ichabod P. Hardy. The work was done by each in thirteen minutes. Mr. Hardy's team was driven by W. R. Heath. The plow, an old one, manufactured by Prouty & Mears, was held by Simon Ward. Mr. Gates held his own plow and drove his own team after the first furrow. He used the Michigan plow. The teams were well managed and worked finely, with the exception that

they were driven too fast. The plowing was done better than could have been expected, considering the speed. Ten miles an hour is too fast for good plowing. Mr. Gates left his ground in much the best condition.

The premiums are awarded as follows: The first and second premiums on plowing with oxen, to be divided equally between D. D. Hardy of Lebanon and T. J. Colby of Enfield, $3 50 to each.

First premium for plowing with horses to Charles Gates of Lebanon, $3 00.

Second premium to Ichabod P. Hardy, of Lebanon, $2 00.

JAMES WOOD, for the committee.

TOWN TEAMS.

The committee on Teams would award to Lebanon the premium on the best ten yoke of oxen, $5 00. Owners of said oxen—Roger Wood, Daniel Hinkley, Silas Waterman, Robert Gates, David Howe, William Durkee, Richard Walker, Richard Buswell, John Hebard, Philander Hall.

WM. BILLINGS, for the committee.

FITZWILLIAM AGRICULTURAL SOCIETY.

The Fitzwilliam Agricultural and Mechanic Association was formed April 7, 1851. "The objects of the Society shall be the improvement of agriculture and the mechanic arts. Any person may become a member by paying fifty cents to the treasurer, and signing the constitution."

The constitution further provides, "that a public fair should be held in the autumn of each year;" and that, "no tax shall ever be made upon the members of this association; but all funds shall be raised by voluntary subscription."

One hundred and forty signatures have been attached to the constitution, mostly citizens of Fitzwilliam, though quite a number had been obtained from Rindge, Jaffrey, Troy and Richmond, N. H., and some from Winchendon, Mass. The Society has been quite harmonious in its movements and has held *three* annual fairs. These fairs have exceeded the most sanguine expectations of its friends, both as it respects number and value of stock and articles exhibited, and also the wide and general interest of neighboring towns, and contributions made by them to promote its objects. Strangers from abroad have bestowed unqualified praise upon these exhibitions as superior in many things, considering the circumstances, to some county fairs they had visited. These commendations have given great impulse to the energetic portion of our community, and have tended to inspire all with confidence to make renewed exertions.

At the fairs of 1851 and 1852 no premiums were offered—for want of funds—but in 1853 small premiums were given on the articles and stock considered most important to the community. The first fair was held on the first Wednesday of Oct., 1851. The Society voted "to have a *farmers'* "*pic nic*" dinner on that day." The staples of dinner were to be "baked beans and Indian pudding" with such other "fixings" as the fancy of the donors might suggest. The day was grand, and the dinner

being free and served in the open air, more than a thousand persons probably, of both sexes and all ages, fared sumptuously to their heart's content, as they themselves bore ample testimony. This gave tone to the day, and the results were happily productive of much good humor.

The *second annual fair* was held Oct. 1st, 1852. No premiums were offered. The records of the Society say, "This fair was believed to be quite successful—as much so as that of last year. It proved an occasion of much good feeling and enjoyment. Addresses were made by the president, A. A. Parker, Esq., Rev. Mr. Wood of Newport, N. H., Rev. Mr. Squires of Jaffrey, and Rev. Mr. Brown and Dr. S. Cummings of Fitzwilliam. Music by Swanzey Band.

The exhibition of stock was quite extensive and very creditable to the owners. The fancy articles, and those of domestic utility, added much to the impression of spectators and seemed to indicate a taste and industrial economy pervading the community. Fine vegetable specimens were abundant; but what seemed to surprise strangers most, and especially those from a more feasible soil, was the exhibition of fruit, especially apples. A prominent gentleman from Massachusetts, in making some public remarks, said that, "he had rarely seen at any County or State Fair better specimens of fruit than before him. He was surprised that such rugged, rocky soil, apparently so forbidding, could be made to produce such tempting fruit and in such variety." The exhibitors felt themselves highly complimented by these and subsequent remarks. Many however predicted that this would be the *ultimatum* of agricultural exhibitions in Fitzwilliam; but subsequent fairs have proved these predictions false, it was only the germ of future operations. The evening closed with a *levee* at a public hall, by the ladies.

During the autumn and winter of 1852–3 the Society held several district meetings, when lectures and addresses were given by A. A. Parker, Esq., Rev. Mr. Brown, W. D. Locke, Dr. Cummings, &c. These meetings were spirited and profitable, and drew forth much interesting agricultural matter. It was very apparent that the mechanical and farming interest was

"looking up." The subjects discussed were cultivation of fruits, making and sowing manures, soils, and *farmers' wives*.

The third annual fair was held on the 12th of October, 1853. The Cheshire county teachers' institute being in operation in the place, and the weather being very fine, a very large collection was the result. In the judgment of some, three thousand spectators were present, and the only disappointment we heard expressed was, "more to be seen than we expected, where did you get all these articles? how could you get up such a show?" To those who had been present at the previous exhibitions, nothing was more evident than *progress*. Each department of the fair was very complete. It would be interesting to detail the various animals and articles presented if space would admit.

Small premiums were given at this fair. The ladies' levee was held in the evening at the large church, which was densely filled. Many distinguished persons were present and entertained the meeting by well-timed and pertinent remarks.

CAMPBELL'S GROUP OF SPANISH MERINO EWES.

METEOROLOGICAL OBSERVATIONS,

MADE AT LONDONDERRY, N. H.,

Latitude 42 *deg.* 53 *min.*, *longitude* 71 *deg.* 20 *min.*

BY R. C. MACK.

The monthly mean of the thermometer for 1852 is made from *four* observations daily, viz: at sunrise, 9 A. M., 3 P. M., and 9 P. M. The mean of the thermometer, sky and wind for 1853 is made from *three* observations daily. The figures in the column marked sky, indicate its mean degree of clearness—0 having denoted entire clearness; 1, a slight degree of cloudiness, and so on to 10, entire cloudiness. The force of the wind is also indicated in numbers, from 0, a calm, to 10, a hurricane. In making the observations on temperature, a standard thermometer of the Smithsonian Institution was used. The instrument is always in shade, at the north side of the house, and exposed to free air.

1852.	Thermometer.								Weather.
Month.	Sunrise.	9 A.M.	3 P. M.	9 P. M.	Mean.	Max.	Min.	Range.	Clear days.
January,	16.3	20.2	26.8	19.5	20.7	42	-4	46	2
February,	21.3	25.9	34.1	25.6	26.7	52	-4	56	2
March,	25.4	31.5	37.3	29.7	30.9	58	0	58	1
April,	33.7	39.	43.8	37.7	38.5	59	23	36	1
May,	47.6	55.5	65.5	54.4	55.7	84	34	50	5
June,	56.1	67.9	72.3	63.5	64.9	89	38	51	3
July,	62.4	72.6	80.2	69.3	71.1	92	50	42	1
August,	57.3	67.5	75.7	65.2	66.4	90	48	42	2
September,	52.6	60.1	71.3	58.	60.5	87	35	52	3
October,	41.	48.3	51.4	46.1	46.7	70	26	44	2
November,	32.5	36.	40.5	34.5	36.8	58	16	42	2
December,	23.9	32.2	37.5	32.1	33.9	60	3	57	1
Yearly means,	39.6	46.4	54.	44.6	46.	70	22	48	25

Latest spring frost, June 12.
First autumnal frost, Sept. 17.
Latest spring snow, April 15.
First autumnal snow, Oct. 15.

First wild flowers, May 7.
Arrival of robin, March 12.
Flight of wild geese, March 20.
Apple bloom, May 26.

1853.	Thermometer.							
Month.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	Range.	Remarks.
January, ...	18.9	28.8	23.2	23.6	48	1	47	4 snows.
February, ...	20.7	31.3	25.5	25.8	57	0	57	Much fog.
March,.....	30.2	39.7	32.	33.8	56	7	49	14, blue bird.
April,.....	38.9	52.5	43.	44.8	76	33	43	10, roads settled.
May,.....	51.	65.3	54.	56.2	84	37	47	4, leafing of elm.
June,.....	63.	77.	61.	67.	90	47	43	12, full foliage.
July, ...	65.1	77.1	68.	70.	88	57	31	30, depart. of swallow.
August,.....	62.7	76.4	65.7	68.4	92	51	41	Much thunder.
September, ..	58.2	69.1	59.8	62.2	87	35	52	2, brilliant aurora.
October, ...	42.6	57.7	47.1	49.1	76	25	51	20, fall of leaf.
November,...	33.3	44.7	36.8	38.4	64	10	54	Two snows.
December, ...	20.	31.1	23.8	24.6	45	0	45	29, great storm.
Yearly means,	42.	54.2	44.9	47.	72	24	46	

Latest spring frost, May 2.
First autumnal frost, Sept. 12.
Latest spring snow, April 16.
First autumnal snow, Nov. 5.

First spring flowers, April 18.
Arrival of robin, March 20.
Flight of geese, March 17.
Apple bloom, May 21.

Rains, Snows, Sky, Wind, &c., for 1853.

	Rain Gauge.		Weather.					
Month.	Rain.	Sn'w.	Clear da's	Cl'dy da's	Sky.	Wind.	Storms.	Prevailing winds.
January, ...	.85	14.5	2	9	4.5	1.5	5	N. West.
February, ...	4.05	16.	1	6	5.9	1.4	7	N. West.
March, ...	1.	9.5	2	3	4.	1.3	6	N. West.
April, ...	3.23		5	3	4.4	1.2	7	N. West.
May,.....	5.33		1	6	5.3	1.5	6	N. West.
June,.....	1.25		3	0	4.	1.3	3	South West.
July, ...	2.98		3	1	4.5	1.1	5	North West.
August,.....	6.80		3	5	4.9	1.1	10	South East.
September, ..	4.30		2	3	5.8	1.4	4	West.
October, ...	4.15		5	2	3.9	1.3	3	North West.
November,...	3.80	1.5	2	6	5.4	1.2	5	North West.
December, ...	1.10	19.	5	3	4.6	1.2	6	Calm.
	39.34	60.5	34	47	4.7	1.3	67	

The above is a table of *aggregates*, except the columns "Sky" and "Wind," which are means.

Mean Annual Temperature, Fall of Rain, &c., from Jan. 1, 1849, *to Dec.* 31, 1853.

	Thermometer.			Rain gauge.		Weather.		
Year.	Mean.	Max.	Min.	Rain.	Snow.	Sky.	Wind.	General remarks.
1849	48.6	98	-11	40.	33.5	4.7	1.5	Severe drouth.
1850	47.2	94	-2	53.5	96.7	4.2	1.5	Potato rot.
1851	46.1	90	-8	40.7	80.	5.5	1.4	Early frosts.
1852	46.	92	-8	35.	95.2	4.8	1.5	Excessive drouth.
1853	47.	92	0	39.5	60.5	4.7	1.3	Great crop of corn.
Means,	47.	93.2	-5.8	41.7	73.9	4.8	1.4	

SEASON OF 1853.

The summer climate of 1853 was generally favorable to agricultural production. Most extremes of temperature were arrested before fatal injury was inflicted upon the growing crops. The partial check particular crops sustained, was more than compensated by succeeding meteorological conditions unusually favorable. In April there was a fair amount of rain in New Hampshire, an excess in Massachusetts, and a little drought in Maine. The temperature of this month in New England was uncommonly high. In May there was twice the average quantity of rain in the Northern States, and the temperature of New Hampshire and Vermont was from 2 to 5 degrees higher than the general mean. Great heat and some drought were the most remarkable meteorological facts in June. An early haying and moderate crops of the staple article of hay were the results.

July gave a temperature a little above the mean, and rain sufficient to keep the ground in good condition. A third *more* rain fell at Concord, N. H., than at this place of observation, and a third *less* fell at Manchester than here.

In August the rains were excessive in the eastern and middle portions of the United States, particularly so in a narrow tract from Southern New Hampshire to Northern New Jersey. While the average fall observed at thirty-seven stations in the States alluded to was 5 inches, at Manchester, N. H., the amount of rain was 9.1 inches—7 at Londonderry—10 at Worcester, Mass., and 12 at Bloomfield, New Jersey. Slight frost appeared the 12th of September, but did no injury to vegetation. On the whole the season was a good one. Corn never was more abundant, and no crop entirely failed, except apples.

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ERRATA.

Page 40, bottom line, for *his*, read *this*.

" 298, bottom line, for *Steele*, read *Stewart*.

" 321, near middle, for *Daniel* Clement, read *David*.

" 326, in Mr. Stanley's statement, the fractions ½ should be printed so as to represent *one-half* of the expense charged to crop, viz: " Cultivation $3 60, one-half charged, &c., $1 80;" " Compost, $4 00, one-half charged, &c., $2 00.

Page 335, for Oratus *Perry*, read *Very*.

" 335, for George *Cawey*, read *Harvey*.

" 335, for F. A. *Wiers*, read *Wier*.